This document was too large to scan as a whole document, therefore it required breaking into smaller sections.

DOCUMENT NUMBER: SD-WM-DP-164

SECTION 8 **OF** 12

TITLE: Final Report for Tank 241BY104 Rotary Mode Cores 116 & 117 [Pgs 1396 Thru 1596]

DATE: 06/25/1996

ORIGINATOR: Benar CJ

CO: WHC

RECIPIENT:

CO:

REFERENCES: ECN-629043

THE FOLLOWING ANALYSES WERE RERUN AND INCLUDED IN THE DATA PACKAGE, BUT THE RESULTS HAVE NOT BEEN REPORTED IN THE FINAL SUMMARY REPORTS.

BY104

LABCORE Data Entry Template for Worklist# 4365

Analyst: Kim Thomas **Instrument:** AB00 12 **Book#** 150B52

Method: LA-508-101 Rev/Mod D-2 WHC-SD-WM-DP-164, REV.1

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S95T003530	0	Z	@ALPHA01	SOLID	95000180	BY104 ROTARY
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S95T003530	0	Z	@ALPHA01	SOLID		
6	SPK	S95T003530	0	Z	@ALPHA01	SOLID		

Final page for worklist # 4365

Kim Thomas 12-18-95
Analyst Signature Date

C. Quinn 12/19/95
Analyst Signature Date

SE Hogan 12/19/95

DATA NOT USED IN PACKAGE

Data Entry Comments:

Samples were not run in replicate and the SPK recovery is out of control limits. Batch will be rerun. 12/20/95

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 4365

Analyst: knt **Instrument:** AB12 **Book#** _____

Method: _____ Rev/Mod _____ WHC-SD-WM-DP-164, REV. 1

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-05	1.06E-5	82.810	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.82E+00	4.820	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<4.83E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	0.00E+00	3.60E-01	0.000	uCi/g
4	REJECT	S95T003530	0	Z	@ALPHA01	ALPHA01	SOLID	N/A	1.53E-01		uCi/g
4	REJECT	S95T003530	0	Z	@ALPHA01	ALPHA01E	SOLID	N/A	1.30E+01		% Ct. Error
5	DUP	S95T003530	0	Z	@ALPHA01	ALPHA01	SOLID	1.53E-1	1.48E-1	3.320	RPD
5	DUP	S95T003530	0	Z	@ALPHA01	ALPHA01E	SOLID	1.00	1.23E+01	12.300	% Ct. Error
6	SPK	S95T003530	0	Z	@ALPHA01	ALPHA01	SOLID	3.92E-02	2.09E-02	53.320	% Recovery

Final page for worklist# 4365

Analyst Signature **Date** **Analyst Signature** **Date**

12/20/95

Reviewer Signature **Date**

DATA NOT USED IN PACKAGE

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1687	1691
4365	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	150B52	150B52
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		55.863	55.997
Batch Number	Standard Value in µCi/mL		1.28E-05	
95004913	Concentration in µCi/L	=	1.06E-02	
Rerun	Replicate Concentration in µCi/L	=	1.06E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.0586E-02	

Sample Prep: N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Sample # WL#4365

Instrument Code WB26872

Prepared By CJO

Chemist SLF

Analyst KNT

Date Complete 12/19/95

Analysis Date 12/18/95

Analysis Time 12:10 PM

Sample Point BY-104

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL		1.06E-05	1.15E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.8%	

Analyst:	CJO	Date: 19-Dec-95	
Signature of Chemist:	SLF	Date: 12/20/95	

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		15	N/A
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	N/A
Work List	GROSS COUNTS	(GC)	8	N/A
4365	COUNT TIME in MINUTES	(CT)	30	N/A
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	N/A
AT	SAMPLE SIZE in mL	(SS)	0.050	N/A
Test Code	DILUTION FACTOR	(DF)	1	N/A
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0312	N/A
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	N/A
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.259	N/A
Batch Number				
95004913				
Rerun				
0	Sample Concentration in µCi/g	<	4.8293E-03	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
WL#4365	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
CJO	
Chemist	
SLF	
Analyst	
KNT	
Date Complete	
12/19/95	
Analysis Date	
12/18/95	
Analysis Time	
12:10 PM	
Sample Point	
BY-104	

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/g	< 4.83E-03		
LESS Than Value was Determined from Lc.				
RELATIVE COUNTING ERROR		500.0%		1.13E-02 µCi/g

Analyst:		CJO	Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM4

WHC-SD-WM-DP-164, REV. 1

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	N/A
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	N/A
Work List	GROSS COUNTS	(GC)	258	N/A
4365	COUNT TIME in MINUTES	(CT)	30	N/A
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	N/A
AT	SAMPLE SIZE in mL	(SS)	0.050	N/A
Test Code	DILUTION FACTOR	(DF)	1	N/A
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0312	N/A
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	N/A
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.230	N/A
Batch Number				
95004913				
Rerun				
0	Sample Concentration in µCi/g		1.5337E-01	

Sample Prep: FUS-ZR01

Sample #: S95T003530

Instrument Code: WB26872

Prepared By: CJO

Chemist: SLF

Analyst: KNT

Date Complete: 12/19/95

Analysis Date: 12/18/95

Analysis Time: 12:10 PM

Sample Point: BY-104

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	1.53E-01	1.13E-02 µCi/g
RELATIVE COUNTING ERROR		13.0%	

Analyst:		CJO	Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

1401

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	N/A
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	N/A
Work List	GROSS COUNTS	(GC)	284	N/A
4365	COUNT TIME in MINUTES	(CT)	30	N/A
AT or TS ?	BACKGROUND in cpm	(BKG)	0.37	N/A
AT	SAMPLE SIZE in mL	(SS)	0.050	N/A
Test Code	DILUTION FACTOR	(DF)	1	N/A
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.3212	N/A
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	N/A
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.097	N/A
Batch Number				
95004913				
Rerun				
0	Sample Concentration in µCi/g		1.4834E-01	

Sample Prep	
FUS-ZR01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T003530	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
CJO	
Chemist	
SLF	
Analyst	
KNT	
Date Complete	
12/19/95	
Analysis Date	
12/18/95	
Analysis Time	
12:10 PM	
Sample Point	
BY-104	

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	1.48E-01	
RELATIVE COUNTING ERROR		12.3%	9.93E-03 µCi/g

Analyst:		CJO	Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	N/A
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	N/A
Work List	TOTAL COUNTS	(TC)	33372	N/A
4365	COUNT TIME in MINUTES	(CT)	30	N/A
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	N/A
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	N/A
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	N/A
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0312	N/A
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	N/A
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	N/A
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	119B43	N/A
95004913	SPIKE VALUE in µCi/mL	(SVal)	3.9215E-02	N/A
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	N/A
0	SAMPLE + SPIKE µCi/g	(S+S)	2.07E+01	N/A
Sample Prep	µCi/g in SAMPLE		1.5337E-01	
FUS-ZR01				
Sample #				
S95T003530	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB26872	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
CJO	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
KNT				
Date Complete				
12/19/95				
Analysis Date				
12/18/95	QC ACTUAL	=	3.92E-02	
Analysis Time	QC FOUND	=	2.09E-02	
12:10 PM	PERCENT SPIKE RECOVERY	=	53.3%	
Sample Point				
BY-104				

Analyst:		CJO	Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 4521

Analyst: S.C.L **Instrument:** AB00 14 **Book#** 11856

Method: LA-508-101 Rev/Mod D-2 WHC-SD-WM-DP-164, REV. 1

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S95T003786	0	F	@ALPHA01	SOLID	95000200	BY104 ROTARY
	Analytes Requested:	ALPHA01 , ALPHA01E						
5	DUP	S95T003786	0	F	@ALPHA01	SOLID		
6	SPK	S95T003786	0	F	@ALPHA01	SOLID		
7	SAMPLE	S95T003787	0	F	@ALPHA01	SOLID	95000200	BY104 ROTARY
	Analytes Requested:	ALPHA01 , ALPHA01E						
8	DUP	S95T003787	0	F	@ALPHA01	SOLID		
9	SPK	S95T003787	0	F	@ALPHA01	SOLID		
10	SAMPLE	S95T003788	0	F	@ALPHA01	SOLID	95000200	BY104 ROTARY
	Analytes Requested:	ALPHA01 , ALPHA01E						
11	DUP	S95T003788	0	F	@ALPHA01	SOLID		
12	SPK	S95T003788	0	F	@ALPHA01	SOLID		
13	SAMPLE	S95T003789	0	F	@ALPHA01	SOLID	95000200	BY104 ROTARY
	Analytes Requested:	ALPHA01 , ALPHA01E						
14	DUP	S95T003789	0	F	@ALPHA01	SOLID		
15	SPK	S95T003789	0	F	@ALPHA01	SOLID		
16	SAMPLE	S95T003790	0	F	@ALPHA01	SOLID	95000200	BY104 ROTARY
	Analytes Requested:	ALPHA01 , ALPHA01E						

DATA NOT USED IN PACKAGE

Data Entry Comments:

The RPD for the STD + Replicate is out of control limits. The batch will be rerun. A spike : 119843

1/3/96

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 4521

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
17	DUP	S95T003790	0	F	@ALPHA01	SOLID		
18	SPK	S95T003790	0	F	@ALPHA01	SOLID		

Final page for worklist # 4521

Sue C Lai 12-29-95
Analyst Signature Date

[illegible] 1/3/96
Analyst Signature Date

SE Hogan 1/3/96

DATA
NOT USED
IN PACKAGE

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 4521

Analyst: scl **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.92E-05	1.95E-5	101.560	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	3.86E+00	3.860	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	8.83E-2	9.000e-002	uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	8.39E+01	83.900	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	0.00E+00	2.50E+00	0.000	uCi/g
4	SAMPLE	S95T003786	0	Z	@ALPHA01	ALPHA01	SOLID	N/A	1.73E-01	0.109	uCi/g
4	SAMPLE	S95T003786	0	Z	@ALPHA01	ALPHA01E	SOLID	N/A	7.14E+01	0.000	% Ct. Error
5	DUP	S95T003786	0	Z	@ALPHA01	ALPHA01	SOLID	1.73E-1	7.21E-2	82.330	RPD
5	DUP	S95T003786	0	Z	@ALPHA01	ALPHA01E	SOLID	1.00	1.13E+02	113.000	% Ct. Error
6	SPK	S95T003786	0	Z	@ALPHA01	ALPHA01	SOLID	3.92E-02	3.19E-02	81.380	% Recovery
7	SAMPLE	S95T003787	0	Z	@ALPHA01	ALPHA01	SOLID	N/A	1.91E-01	0.213	uCi/g
7	SAMPLE	S95T003787	0	Z	@ALPHA01	ALPHA01E	SOLID	N/A	1.13E+02	0.000	% Ct. Error
8	DUP	S95T003787	0	Z	@ALPHA01	ALPHA01	SOLID	1.91E-1	<2.77E-1		RPD
8	DUP	S95T003787	0	Z	@ALPHA01	ALPHA01E	SOLID	1.00	1.40E+02	140.000	% Ct. Error
9	SPK	S95T003787	0	Z	@ALPHA01	ALPHA01	SOLID	3.92E-02	3.27E-02	83.420	% Recovery
10	SAMPLE	S95T003788	0	Z	@ALPHA01	ALPHA01	SOLID	N/A	1.08E+00	0.540	uCi/g
10	SAMPLE	S95T003788	0	Z	@ALPHA01	ALPHA01E	SOLID	N/A	4.43E+01	0.000	% Ct. Error
11	DUP	S95T003788	0	Z	@ALPHA01	ALPHA01	SOLID	1.08E+0	8.03E-1	29.420	RPD
11	DUP	S95T003788	0	Z	@ALPHA01	ALPHA01E	SOLID	1.00	5.46E+01	54.600	% Ct. Error
12	SPK	S95T003788	0	Z	@ALPHA01	ALPHA01	SOLID	3.92E-02	3.11E-02	79.340	% Recovery
13	SAMPLE	S95T003789	0	Z	@ALPHA01	ALPHA01	SOLID	N/A	2.28E-02	5.480e-003	uCi/g
13	SAMPLE	S95T003789	0	Z	@ALPHA01	ALPHA01E	SOLID	N/A	3.15E+01	0.000	% Ct. Error
14	DUP	S95T003789	0	Z	@ALPHA01	ALPHA01	SOLID	2.28E-2	1.82E-2	22.440	RPD
14	DUP	S95T003789	0	Z	@ALPHA01	ALPHA01E	SOLID	1.00	3.15E+01	31.500	% Ct. Error
15	SPK	S95T003789	0	Z	@ALPHA01	ALPHA01	SOLID	3.92E-02	2.39E-02	60.970	% Recovery
16	SAMPLE	S95T003790	0	Z	@ALPHA01	ALPHA01	SOLID	N/A <	8.03E-02	0.104	uCi/g
16	SAMPLE	S95T003790	0	Z	@ALPHA01	ALPHA01E	SOLID	N/A	1.88E+02	0.000	% Ct. Error
17	DUP	S95T003790	0	Z	@ALPHA01	ALPHA01	SOLID	<8.03E-2	1.28E-1		RPD
17	DUP	S95T003790	0	Z	@ALPHA01	ALPHA01E	SOLID	1.00	6.27E+01	62.700	% Ct. Error
18	SPK	S95T003790	0	Z	@ALPHA01	ALPHA01	SOLID	3.92E-02	3.56E-02	90.820	% Recovery

Final page for worklist# 4521

Analyst Signature **Date** **Analyst Signature** **Date**

1/3/96

Reviewer Signature **Date**

DATA NOT USED IN PACKAGE

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Project	GROSS COUNTS	(GC)	2599	3336
4521	COUNT TIME in MINUTES	(CT)	30	30
Lab	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	11B56	11B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		86.333	110.900
Batch Number	Standard Value in µCi/mL		1.92E-05	
95005082	Concentration in µCi/L	=	1.71E-02	
Form	Replicate Concentration in µCi/L	=	2.20E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9535E-02	
Sample Prep				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)			
WL4521	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
MCB				
Chemist				
SLF	ALPHA TOTAL CONCENTRATION in µCi/mL		1.95E-05	DETECTION LEVEL
Analyst				
SCL				
Date Complete				1.10E-07 µCi/mL
01/03/96	RELATIVE COUNTING ERROR		3.9%	
Analysis Date				
12/29/95				
Analysis Time				
12:00 PM				
Sample Point				
BY-104 ROTARY				

Analyst:		MCB	Date: 03-Jan-96
Signature of Chemist:		SLF	Date:

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

WHC-SD-WM-DP-164, REV. 1

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	23	22
4521	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.04	2.04
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.467	0.433

Batch Number	
95005082	
Renun	
0	
Sample Prep	
N/A	
Sample #	
WL4521	
Instrument Code	
WB27807	
Prepared By	
MCB	
Chemist	
SLF	
Analyst	
SCL	
Date Complete	
01/03/96	
Analysis Date	
12/29/95	
Analysis Time	
12:00 PM	
Sample Point	
BY-104 ROTARY	

Blank Concentration in µCi/g	9.15E-02
Replicate Concentration in µCi/g	8.50E-02
Average Concentration in µCi/g	8.8265E-02

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	8.83E-02	1.09E-01 µCi/g
RELATIVE COUNTING ERROR		83.9%	

Analyst:	MCB	Date:	03-Jan-96
Signature of Chemist:	SLF	Date:	1/3/96

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

I:\508101\OUT\AT4521.WB1 01/03/96

WHC-SD-WM-DP-164, REV. 1

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	25	46
4521	COUNT TIME in MINUTES	(CT)	30	30
Year	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.04	2.04
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.533	1.233

Batch Number		
95005082	Blank Concentration in µCi/g	1.05E-01
Rerun	Replicate Concentration in µCi/g	2.42E-01
0	Average Concentration in µCi/g	1.7326E-01

Sample Prep
FUS-ZR01

Sample #
S95T003786

Instrument Code
WB27807

Prepared By
MCB

Chemist
SLF

Analyst
SCL

Date Complete
01/03/96

Analysis Date
12/29/95

Analysis Time
12:00 PM

Sample Point
BY-104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	1.73E-01	1.09E-01 µCi/g
RELATIVE COUNTING ERROR		71.4%	

Analyst:	MCB	Date: 03-Jan-96	
Signature of Chemist:	SLF	Date: 1/3/96	

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

I:\508101\OUT\AT4521.WB1 01/03/96

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	18	22
4521	COUNT TIME in MINUTES	(CT)	30	30
Prep By	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0344	2.0344
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.300	0.433

Blank Concentration in µCi/g	5.90E-02
Replicate Concentration in µCi/g	8.52E-02
Average Concentration in µCi/g	7.2118E-02

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Batch Number	95005082		
Replicate	0		
Sample Prep	FUS-ZR01		
Sample #	S95T003786		
Instrument Code	WB27807		
Prepared By	MCB		
Chemist	SLF		
Analyst	SCL		
Date Complete	01/03/96		
Analysis Date	12/29/95		
Analysis Time	12:00 PM		
Sample Point	BY-104 ROTARY		

	v RESULTS v in µCi/g		DETECTION LEVEL
ALPHA TOTAL		7.21E-02	1.10E-01 µCi/g
RELATIVE COUNTING ERROR		113.2%	

Analyst:	MCB		Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

				SPIKE	REPLICATE
Type	DETECTOR NUMBER			14	14
SPK	DISH SIZE 1 , 2 , or 5		(MS)	2	2
Work List	TOTAL COUNTS		(TC)	47109	49668
4521	COUNT TIME in MINUTES		(CT)	30	30
Matrix	BACKGROUND in cpm		(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.500	0.500
Digest Code	SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L		(Dg/L)	2.04	2.04
Matrix	SPIKE VOLUME in mL		(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR		(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER		(Spk BN)	119B43	119B43
95005082	SPIKE VALUE in µCi/mL		(SVal)	3.9213E-02	3.9213E-02
Retain	INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g		(S+S)	3.08E+02	3.25E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE			1.7326E-01	
FUS-ZR01					
Sample #					
S95T003786					
Instrument Code					
WB27807					
Prepared By					
MCB					
Chemist					
SLF					
Analyst					
SCL					
Date Complete					
01/03/96					
Analysis Date					
12/29/95					
Analysis Time					
12:00 PM					
Sample Point					
BY-104 ROTARY					

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.92E-02
QC FOUND	=	3.19E-02
AVG. PERCENT SPIKE RECOVERY	=	81.4%

Analyst:	MCB	Date: 03-Jan-96
Signature of Chemist:	SLF	Date: 1/3/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Order	GROSS COUNTS	(GC)	18	30
4521	COUNT TIME in MINUTES	(CT)	30	30
Analyte	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Analyte Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0932	2.0932
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.300	0.700

Batch Number		
95005082	Blank Concentration in µCi/g	1.15E-01
Remin	Replicate Concentration in µCi/g	2.68E-01
0	Average Concentration in µCi/g	1.9116E-01

Sample Prep
FUS-ZR01

Sample #
S95T003787

Instrument Code
WB27807

Prepared By
MCB

Chemist
SLF

Analyst
SCL

Date Complete
01/03/96

Analysis Date
12/29/95

Analysis Time
12:00 PM

Sample Point
BY-104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

				DETECTION LEVEL
SLF	ALPHA TOTAL	in µCi/g	1.91E-01	2.13E-01 µCi/g
	RELATIVE COUNTING ERROR		113.2%	

Analyst:	MCB	Date: 03-Jan-96	
Signature of Chemist:	SLF	Date: 1/3/96	

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Instrument	GROSS COUNTS	(GC)	16	31
4521	COUNT TIME in MINUTES	(CT)	30	30
Test Code	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1224	2.1224
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.508	0.733

Batch Number			
95005082	Blank Concentration in µCi/g	<	1.92E-01
Replicate	Replicate Concentration in µCi/g		2.77E-01
0	Maximum Concentration in µCi/g	<	2.7651E-01

Sample Prep
FUS-ZR01

Sample #
S95T003787

Instrument Code
WB27807

Prepared By
MCB

Chemist
SLF

Analyst
SCL

Date Complete
01/03/96

Analysis Date
12/29/95

Analysis Time
12:00 PM

Sample Point
BY-104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/g	< 2.77E-01		
LESS THAN Value was Determined from Rmax.				
RELATIVE COUNTING ERROR			140.0%	2.10E-01 µCi/g

Analyst:		MCB	Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPIKE9

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Worklist	TOTAL COUNTS	(TC)	50632	48581
4521	COUNT TIME in MINUTES	(CT)	30	30
Count Time	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Instrument	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0932	2.0932
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	119B43	119B43
95005082	SPIKE VALUE in µCi/mL	(SVal)	3.9213E-02	3.9213E-02
Run	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	6.45E+02	6.19E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.9116E-01	
FUS-ZR01				
Sample #				
S95T003787	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27807	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
01/03/96				
Analysis Date				
12/29/95	QC ACTUAL	=	3.92E-02	
Analysis Time	QC FOUND	=	3.27E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	83.5%	
Sample Point				
BY-104 ROTARY				

Analyst:		MCB	Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM10

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Protocol	GROSS COUNTS	(GC)	40	45
4521	COUNT TIME in MINUTES	(CT)	30	30
Blank	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Digest Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0668	2.0668
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.033	1.200

Batch Number		
95005082	Blank Concentration in µCi/g	1.00E+00
Replicate	Replicate Concentration in µCi/g	1.16E+00
0	Average Concentration in µCi/g	1.0809E+00

Sample Prep
FUS-ZR01

Sample #
S95T003788

Instrument Code
WB27807

Prepared By
MCB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

Chemist: SLF	ALPHA TOTAL	in µCi/g	1.08E+00	DETECTION LEVEL
Analyst: SCL				
Data Complete: 01/03/96	RELATIVE COUNTING ERROR		44.3%	5.40E-01 µCi/g

Analysis Date
12/29/95

Analysis Time
12:00 PM

Sample Point
BY-104 ROTARY

Analyst:	MCB	Date: 03-Jan-96	
Signature of Chemist:	SLF	Date: 1/3/96	

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP11

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Unit	GROSS COUNTS	(GC)	32	35
4521	COUNT TIME in MINUTES	(CT)	30	30
Weight B	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Digest Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0348	2.0348
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.767	0.867

Batch Number		
95005082	Blank Concentration in µCi/g	7.54E-01
Rerun	Replicate Concentration in µCi/g	8.52E-01
0	Average Concentration in µCi/g	8.0297E-01

Sample Prep
FUS-ZR01

Sample #
S95T003788

Instrument Code
WB27807

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By
MCB

Chemist
SLF

Analyst
SCL

Date Complete
01/03/96

Analysis Date
12/29/95

Analysis Time
12:00 PM

Sample Point
BY-104 ROTARY

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	8.03E-01	5.48E-01 µCi/g
RELATIVE COUNTING ERROR		54.6%	

Analyst:	MCB		Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPIKE12

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Worksheet	TOTAL COUNTS	(TC)	46007	48343
4521	COUNT TIME in MINUTES	(CT)	30	30
AT or IB2	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0668	2.0668
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	119B43	119B43
95005082	SPIKE VALUE in µCi/mL	(SVal)	3.9213E-02	3.9213E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	1.48E+03	1.56E+03
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.0809E+00	
FUS-ZR01				
Sample #				
S95T003788	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27807	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
01/03/96				
Analysis Date				
12/29/95	QC ACTUAL	=	3.92E-02	
Analysis Time	QC FOUND	=	3.11E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	79.4%	
Sample Point				
BY-104 ROTARY				

Analyst:		MCB	Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM13

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Unit	GROSS COUNTS	(GC)	61	96
4521	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0152	2.0152
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.733	2.900

Blank Concentration in µCi/g	1.70E-02
Replicate Concentration in µCi/g	2.85E-02
Average Concentration in µCi/g	2.2772E-02

Batch Number: 95005082

Rpm: 0

Sample Prep: FUS-ZR01

Sample #: S95T003789

Instrument Code: WB27807

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 01/03/96

Analysis Date: 12/29/95

Analysis Time: 12:00 PM

Sample Point: BY-104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	2.28E-02	5.48E-03 µCi/g
RELATIVE COUNTING ERROR		31.5%	

Analyst:	MCB		Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP14

WHC-SD-WM-DP-164, REV. 1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Count	GROSS COUNTS	(GC)	61	67
4521	COUNT TIME in MINUTES	(CT)	30	30
Bkgd	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Cal Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0008	2.0008
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.733	1.933

Batch Number		
95005082	Blank Concentration in µCi/g	1.72E-02
Aliquot	Replicate Concentration in µCi/g	1.91E-02
0	Average Concentration in µCi/g	1.8151E-02

Sample Prep
FUS-ZR01

Sample #
S95T003789

Instrument Code
WB27807

Prepared By
MCB

Chemist
SLF

Analyst
SCL

Date Complete
01/03/96

Analysis Date
12/29/95

Analysis Time
12:00 PM

Sample Point
BY-104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	1.82E-02	
RELATIVE COUNTING ERROR		31.5%	5.52E-03 µCi/g

Analyst:	MCB		Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

I:\508101\OUT\AT4521.WB1 01/03/96

WORKBOOK PAGE: SPIKE15

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Worksheet	TOTAL COUNTS	(TC)	33240	39170
4521	COUNT TIME in MINUTES	(CT)	30	30
Vial Type	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0152	2.0152
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	119B43	119B43
95005082	SPIKE VALUE in µCi/mL	(SVal)	3.9213E-02	3.9213E-02
Reqnum	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	1.09E+01	1.28E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.2772E-02	
FUS-ZR01				
Sample #				
S95T003789	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27807	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
01/03/96				
Analysis Date				
12/29/95	QC ACTUAL	=	3.92E-02	
Analysis Time	QC FOUND	=	2.39E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	60.8%	
Sample Point				
BY-104 ROTARY				

Analyst:		MCB	Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA
NOT USED
IN PACKAGE

WORKBOOK PAGE: SAM16

AT : LA-508-101 (D-2) SOLIDS

				SAMPLE	REPLICATE
Type	DETECTOR NUMBER			14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)		2	2
Work List	GROSS COUNTS	(GC)		14	14
4521	COUNT TIME in MINUTES	(CT)		30	30
AT or TB ?	BACKGROUND in cpm	(BKG)		0.3	0.3
AT	SAMPLE SIZE in mL	(SS)		0.500	0.500
Test Code	DILUTION FACTOR	(DF)		101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)		2.1452	2.1452
Matrix	EFFICIENCY FACTOR	(EFF)		0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.430	0.430
Batch Number					
95005082	Blank Concentration in µCi/g		<	8.03E-02	
Rerun	Replicate Concentration in µCi/g		<	8.03E-02	
0	Maximum Concentration in µCi/g		<	8.0288E-02	
Sample Prep					
FUS-ZR01	Rs (Sample Count Rate) = (TC / CT) - BKG				
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)				
S95T003790					
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100				
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				
Prepared By					
MCB					
Chemist		v RESULTS v			
SLF	ALPHA TOTAL	in µCi/g	< 8.03E-02		DETECTION LEVEL
Analyst					
SCL	LESS THAN Value was Determined from Rmax.				
Date Complete					1.04E-01 µCi/g
01/03/96	RELATIVE COUNTING ERROR		188.0%		
Analysis Date					
12/29/95					
Analysis Time					
12:00 PM					
Sample Point					
BY-104 ROTARY					

Analyst:		MCB	Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP17

WHC-SD-WM-DP-164, REV. 1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Lot	GROSS COUNTS	(GC)	28	30
4521	COUNT TIME in MINUTES	(CT)	30	30
Aliq. Lab #	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0912	2.0912
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.633	0.700

Batch Number		
95005082	Blank Concentration in µCi/g	1.21E-01
Rerun	Replicate Concentration in µCi/g	1.34E-01
0	Average Concentration in µCi/g	1.2756E-01

Sample Prep
FUS-ZR01

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample #
S95T003790

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Instrument Code
WB27807

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By
MCB

Chemist
SLF

v RESULTS v

ALPHA TOTAL	in µCi/g	1.28E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		62.7%	1.07E-01 µCi/g

Analyst
SCL

Date Complete
01/03/96

Analysis Date
12/29/95

Analysis Time
12:00 PM

Sample Point
BY-104 ROTARY

Analyst:	MCB		Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WHC-SD-WM-DP-164, REV. 1

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work Dist	TOTAL COUNTS	(TC)	53424	54373
4521	COUNT TIME in MINUTES	(CT)	30	30
Instr ID	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1452	2.1452
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	119B43	119B43
95005082	SPIKE VALUE in µCi/mL	(SVal)	3.9213E-02	3.9213E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	3.32E+02	3.38E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE	<	8.0288E-02	
FUS-ZR01				
Sample #				
S95T003790	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27807	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete	NOTE: Original Sample result was a LESS THAN value. Zero (0) was subtracted from the spiked value for QC found calculation.			
01/03/96				
Analysis Date				
12/29/95	QC ACTUAL	=	3.92E-02	
Analysis Time	QC FOUND	=	3.56E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	90.7%	
Sample Point				
BY-104 ROTARY				

Analyst:		MCB	Date: 03-Jan-96
Signature of Chemist:		SLF	Date: 1/3/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

Rej 3

LABCORE Data Entry Template for Worklist# 6556

Analyst: AHL **Instrument:** AB00 18 **Book#** 43856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T003649	0	Z	@BETA-01	SOLID	95000180	BY104 ROTARY
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T003649	0	Z	@BETA-01	SOLID		
6	SPK	S95T003649	0	Z	@BETA-01	SOLID		

Final page for worklist # 6556

G Lewis 3/18/96
Analyst Signature **Date**

C.J. Oppen 3/19/96
Analyst Signature **Date**

Sue Hogan 3/19/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6556

Analyst: akl **Instrument:** AB18 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@BETA-01	BETA-01	SOLID	2.18E-04	2.17E-4	99.540	% Recovery
1	STD		0	@BETA-01	BETA-01E	SOLID	1.00	7.95E-01	0.800	% Ct. Error
2	BLNK-PREP		0	@BETA-01	BETA-01	SOLID	1	3.61E-2	4.000e-002	uCi/g
2	BLNK-PREP		0	@BETA-01	BETA-01E	SOLID	1.00	4.31E+01	43.100	% Ct. Error
3	BLNK/BKG		0	@BETA-01	BETA-01	SOLID	1.00E+00	1.52E+00	1.520	uCi/g
4	SAMPLE	S95T003649	0 Z	@BETA-01	BETA-01	SOLID	N/A	1.56E+02	2.330e-002	uCi/g
4	SAMPLE	S95T003649	0 Z	@BETA-01	BETA-01E	SOLID	N/A	2.86E-01	0.000	% Ct. Error
5	DUP	S95T003649	0 Z	@BETA-01	BETA-01	SOLID	1.56E+2	1.42E+2	9.400	RPD
5	DUP	S95T003649	0 Z	@BETA-01	BETA-01E	SOLID	1.00	3.08E-01	0.310	% Ct. Error
6	SPK	S95T003649	0 Z	@BETA-01	BETA-01	SOLID	1.93E-01	1.79E-01	92.750	% Recovery

Final page for worklist# 6556

Analyst Signature **Date** **Analyst Signature** **Date**

Reviewer Signature 3/20/96 **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

TB : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
TB	DETECTOR NUMBER		18	18
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Line	GROSS COUNTS	(GC)	61450	61960
6556	COUNT TIME in MINUTES	(CT)	30	30
Lot of TB 7	BACKGROUND in cpm	(BKG)	7	7
TB	SAMPLE SIZE in mL	(SS)	10.000	10.000
Matrix Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2041.333	2058.333
Entry Number	Standard Value in µCi/mL		2.18E-04	
96002219	Concentration in µCi/L	=	2.16E-01	
Batch	Replicate Concentration in µCi/L	=	2.18E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	2.1675E-01	

Sample Prep
N/A

Sample #
WL6556

Instrument Code
WB27809

Prepared By
CJO

Chemist
SLF

Analyst
AKL

Date Complete
03/19/96

Analysis Date
03/18/96

Analysis Time
01:00 PM

Sample Point
BY104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

TOTAL BETA µCi/mL = TOTAL BETA µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA CONTRATION in µCi/mL		2.17E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	0.8%	2.48E-07 µCi/mL

Analyst:		CJO	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

TB : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		18	18
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	314	324
6556	COUNT TIME in MINUTES	(CT)	30	30
Type of TB ?	BACKGROUND in cpm	(BKG)	7	7
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.3424	2.3424
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.467	3.800
Batch Number				
96002219	Blank Concentration in µCi/g		3.44E-02	
Replicate	Replicate Concentration in µCi/g		3.77E-02	
0	Average Concentration in µCi/g		3.6083E-02	

Sample Prep: 18

Sample #: WL6556

Instrument Code: WB27809

Prepared By: CJO

Chemist: SLF

Analyst: AKL

Date Complete: 03/19/96

Analysis Date: 03/18/96

Analysis Time: 01:00 PM

Sample Point: BY104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA in µCi/g (Average)	=	3.61E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		43.1%	2.33E-02 µCi/g

Analyst:		AKL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

TB : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	471179	469477
6556	COUNT TIME in MINUTES	(CT)	30	30
Sample Type	BACKGROUND in cpm	(BKG)	7	7
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.3424	2.3424
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		15698.967	15642.233

Batch Number		
96002219	Blank Concentration in µCi/g	1.56E+02
Batch	Replicate Concentration in µCi/g	1.55E+02
0	Average Concentration in µCi/g	1.5563E+02

Sample Prep
FUS-ZR01

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample #
S95T003649

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Instrument Code
WB27809

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By
CJO

Chemist
SLF

TOTAL BETA in µCi/g (Average) =	1.56E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.3%	2.33E-02 µCi/g

Analyst
AKL

Date Complete
03/19/96

Analysis Date
03/18/96

Analysis Time
01:00 PM

Sample Point
BY104 ROTARY

Analyst:	AKL	Date:	19-Mar-96
Signature of Chemist:	SLF	Date:	3/20/96

SAMPLE.WB1 Rev. 1.0 508101M

WORKBOOK PAGE: DUP5

TB : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		18	18
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	404277	415797
6556	COUNT TIME in MINUTES	(CT)	30	30
Count Date	BACKGROUND in cpm	(BKG)	7	7
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2316	2.2316
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13468.900	13852.900

Batch Number		
96002219	Blank Concentration in µCi/g	1.40E+02
Rerun	Replicate Concentration in µCi/g	1.44E+02
0	Average Concentration in µCi/g	1.4240E+02

Sample Prep
FUS-ZR01

Sample #
S95T003649

Instrument Code
WB27809

Prepared By
CJO

Chemist
SLF

Analyst
AKL

Date Complete
03/19/96

Analysis Date
03/18/96

Analysis Time
01:00 PM

Sample Point
BY104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA in µCi/g (Average)	=	1.42E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	2.44E-02 µCi/g

Analyst:		AKL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

TB : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		18	18
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work Unit	TOTAL COUNTS	(TC)	329452	322693
6556	COUNT TIME in MINUTES	(CT)	10	10
Aliquot ID #	BACKGROUND in cpm	(BKG)	7	7
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.3424	2.3424
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96002219	SPIKE VALUE in µCi/mL	(SVal)	1.9254E-01	1.9254E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.426	0.426
0	SAMPLE + SPIKE µCi/g	(S+S)	3.27E+02	3.20E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.5563E+02	
FUS-ZR01				
Sample #				
S95T003649	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dprn/µCi)			
WB27809	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
CJO	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
03/19/96				
Analysis Date				
03/18/96	QC ACTUAL	=	1.93E-01	
Analysis Time	QC FOUND	=	1.79E-01	
01:00 PM	AVG. PERCENT SPIKE RECOVERY	=	93.0%	
Sample Point				
BY104 ROTARY				

Analyst:		CJO	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

SPIKE.WB1 Rev. 1.0 508101ML

1 of 3

LABCORE Data Entry Template for Worklist# 6559

Analyst: S.C.L. **Instrument:** AB00 15 **Book#** 43 B5 6

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T003650	0	Z	@BETA-01	SOLID	95000180	BY104 ROTARY
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T003650	0	Z	@BETA-01	SOLID		
6	SPK	S95T003650	0	Z	@BETA-01	SOLID		
7	SAMPLE	S95T003651	0	Z	@BETA-01	SOLID	95000180	BY104 ROTARY
		Analytes Requested: BETA-01 , BETA-01E						
8	DUP	S95T003651	0	Z	@BETA-01	SOLID		

Final page for worklist # 6559

Sue C Lai 3-18-96
Analyst Signature **Date**

3/19/96
Analyst Signature **Date**
Sue Hogan 3/19/96

Data Entry Comments: Replicate sample and Duplicate data confirm RPD for sample 3651. No rerun requested. 3/20/96

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6559

Analyst: scl **Instrument:** AB15 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	2.18E-04	2.18E-4	100.000	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	8.01E-01	0.800	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	7.63E-2	8.000e-002	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	5.00E+01	50.000	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.39E+00	1.390	uCi/g
4	SAMPLE	S95T003650	0	Z	@BETA-01	BETA-01	SOLID	N/A	1.60E+02	5.690e-002	uCi/g
4	SAMPLE	S95T003650	0	Z	@BETA-01	BETA-01E	SOLID	N/A	4.16E-01	0.000	% Ct. Error
5	DUP	S95T003650	0	Z	@BETA-01	BETA-01	SOLID	1.60E+2	1.46E+2	9.150	RPD
5	DUP	S95T003650	0	Z	@BETA-01	BETA-01E	SOLID	1.00	4.38E-01	0.440	% Ct. Error
6	SPK	S95T003650	0	Z	@BETA-01	BETA-01	SOLID	1.93E-01	1.82E-01	94.300	% Recovery
7	SAMPLE	S95T003651	0	Z	@BETA-01	BETA-01	SOLID	N/A	1.36E+02	5.610e-002	uCi/g
7	SAMPLE	S95T003651	0	Z	@BETA-01	BETA-01E	SOLID	N/A	4.51E-01	0.000	% Ct. Error
8	DUP	S95T003651	0	Z	@BETA-01	BETA-01	SOLID	1.36E+2	1.52E+2	11.110	RPD
8	DUP	S95T003651	0	Z	@BETA-01	BETA-01E	SOLID	1.00	4.23E-01	0.420	% Ct. Error

Final page for worklist# 6559

Analyst Signature Date

Analyst Signature Date

3/20/96

Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

TB : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
DETECTOR NUMBER			15	15
DISH SIZE (1 , 2 , or 5)	(MS)		2	2
GROSS COUNTS	(GC)		60765	62221
COUNT TIME in MINUTES	(CT)		30	30
BACKGROUND in cpm	(BKG)		9	9
SAMPLE SIZE in mL	(SS)		10.000	10.000
DILUTION FACTOR	(DF)		1	1
STANDARD BOOK NUMBER	(Std BN)		43B56	43B56
EFFICIENCY FACTOR	(EFF)		0.4207	0.4207
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			2016.167	2065.033
Standard Value in µCi/mL			2.18E-04	
Concentration in µCi/L		=	2.16E-01	
Replicate Concentration in µCi/L		=	2.21E-01	
AVERAGE CONCENTRATION in µCi/L		=	2.1849E-01	

Type	STD
Work List	6559
AT or TB ?	TB
Test Code	@BETA-01
Matrix	LIQUID
Batch Number	96002220
Rerun	0
Sample Prep	N/A
Sample #	WL6559
Instrument Code	WB26872
Prepared By	MCB
Chemist	SLF
Analyst	SCL
Date Complete	03/19/96
Analysis Date	03/18/96
Analysis Time	11:30 AM
Sample Point	BY-104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

TOTAL BETA µCi/mL = TOTAL BETA µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
TOTAL BETA CONTRATION in µCi/mL		2.18E-04	2.83E-07 µCi/mL
RELATIVE COUNTING ERROR	=	0.8%	

Analyst:		MCB	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

TB : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	369	384
6559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1908	2.1908
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.300	3.800
Batch Number				
96002220	Blank Concentration in µCi/g		7.10E-02	
Rerun	Replicate Concentration in µCi/g		8.17E-02	
0	Average Concentration in µCi/g		7.6340E-02	

Sample Prep: N/A

Sample #: WL6559

Instrument Code: WB26872

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 03/19/96

Analysis Date: 03/18/96

Analysis Time: 11:30 AM

Sample Point: BY-104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA in µCi/g (Average) =	7.63E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	50.0%	5.69E-02 µCi/g

Analyst:		SCL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

WHC-SD-WM-DP-164, REV. 1

TB : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	222422	223761
6559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1908	2.1908
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7405.067	7449.700

Batch Number	
96002220	Blank Concentration in µCi/g 1.59E+02
Rerun	Replicate Concentration in µCi/g 1.60E+02
0	Average Concentration in µCi/g 1.5972E+02
Sample Prep	
FUS-ZR01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T003650	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.60E+02
Analyst	
SCL	
Date Complete	
03/19/96	RELATIVE COUNTING ERROR 0.4%
Analysis Date	
03/18/96	
Analysis Time	
11:30 AM	
Sample Point	
BY-104 ROTARY	

DETECTION LEVEL
5.69E-02 µCi/g

Analyst:		SCL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

SAMPLE.WB1 Rev. 1.0 508101ML

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WORKBOOK PAGE: DUP5

WHC-SD-WM-DP-164, REV. 1

TB : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	201196	203125
6559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.17	2.17
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6697.533	6761.833

Batch Number		
96002220	Blank Concentration in µCi/g	1.45E+02
Rerun	Replicate Concentration in µCi/g	1.47E+02
0	Average Concentration in µCi/g	1.4610E+02

Sample Prep: FUS-ZR01

Sample #: S95T003650

Instrument Code: WB26872

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 03/19/96

Analysis Date: 03/18/96

Analysis Time: 11:30 AM

Sample Point: BY-104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA in µCi/g (Average) =	1.46E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.4%	5.75E-02 µCi/g

Analyst:		SCL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

SAMPLE.WB1 Rev. 1.0 508101MD

WORKBOOK PAGE: SPIKE6

TB : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	725364	740721
6559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1908	2.1908
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96002220	SPIKE VALUE in µCi/mL	(SVal)	1.9254E-01	1.9254E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
0	SAMPLE + SPIKE µCi/g	(S+S)	5.20E+02	5.31E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.5972E+02	
FUS-ZR01				
Sample #				
S95T003650	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB26872	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
03/19/96				
Analysis Date				
03/18/96	QC ACTUAL	=	1.93E-01	
Analysis Time	QC FOUND	=	1.82E-01	
11:30 AM	AVG. PERCENT SPIKE RECOVERY	=	94.5%	
Sample Point				
BY-104 ROTARY				

Analyst:		MCB	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

TB : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1, 2, or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	190045	194623
6559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2236	2.2236
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6325.833	6478.433
Batch Number				
96002220	Blank Concentration in µCi/g		1.34E+02	
Rerun	Replicate Concentration in µCi/g		1.37E+02	
0	Average Concentration in µCi/g		1.3564E+02	
Sample Prep				
FUS-ZR01	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
S95T003651				
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
MCB				
Chemist				
SLF	TOTAL BETA in µCi/g (Average) =		1.36E+02	DETECTION LEVEL
Analyst				
SCL				
Date Complete				5.61E-02 µCi/g
03/19/96	RELATIVE COUNTING ERROR		0.5%	
Analysis Date				
03/18/96				
Analysis Time				
11:30 AM				
Sample Point				
BY-104 ROTARY				

Analyst:		SCL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

TB : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	218231	215017
6559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2396	2.2396
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7265.367	7158.233
Batch Number				
96002220	Blank Concentration in µCi/g		1.53E+02	
Rerun	Replicate Concentration in µCi/g		1.51E+02	
0	Average Concentration in µCi/g		1.5171E+02	
Sample Prep				
FUS-ZR01	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
S95T003651				
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
MCB				
Chemist				
SLF	TOTAL BETA in µCi/g (Average) =		1.52E+02	DETECTION LEVEL
Analyst				
SCL				
Date Complete				5.57E-02 µCi/g
03/19/96	RELATIVE COUNTING ERROR		0.4%	
Analysis Date				
03/18/96				
Analysis Time				
11:30 AM				
Sample Point				
BY-104 ROTARY				

Analyst:		SCL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/20/96

SAMPLE.WB1 Rev. 1.0 508101ML

1439

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LABCORE Data Entry Template for Worklist# 6565

Analyst: AKL **Instrument:** AB00 14 **Book#** 43856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T003663	0	Z	@BETA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: BETA-01 , BETA-01E							
5	DUP	S95T003663	0	Z	@BETA-01	SOLID		
6	SPK	S95T003663	0	Z	@BETA-01	SOLID		
7	SAMPLE	S95T003664	0	Z	@BETA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: BETA-01 , BETA-01E							
8	DUP	S95T003664	0	Z	@BETA-01	SOLID		

Final page for worklist # 6565

C. Luis 3/18/96
Analyst Signature **Date**

C. Owen 3/19/96
Analyst Signature **Date**

Sue Hogan 3/19/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6566

Analyst: adp **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		BBETA-01	BETA-01	SOLID	2.18E-04	2.17E-4	99.540	% Recovery
1	STD		0		BBETA-01	BETA-01E	SOLID	1.00	7.80E-01	0.780	% Ct. Error
2	BLNK-PREP		0		BBETA-01	BETA-01	SOLID	1	1.64E-1	0.160	uCi/g
2	BLNK-PREP		0		BBETA-01	BETA-01E	SOLID	1.00	2.78E+01	27.800	% Ct. Error
3	BLNK/BKG		0		BBETA-01	BETA-01	SOLID	1.00E+00	1.61E+00	1.610	uCi/g
4	SAMPLE	S95T003788	0	Z	BBETA-01	BETA-01	SOLID	N/A	5.05E+02	6.500e-002	uCi/g
4	SAMPLE	S95T003788	0	Z	BBETA-01	BETA-01E	SOLID	N/A	2.31E-01	0.000	% Ct. Error
5	DUP	S95T003788	0	Z	BBETA-01	BETA-01	SOLID	5.05E+2	4.64E+2	8.460	RPD
5	DUP	S95T003788	0	Z	BBETA-01	BETA-01E	SOLID	1.00	2.41E-01	0.240	% Ct. Error
6	SPK	S95T003788	0	Z	BBETA-01	BETA-01	SOLID	1.92E-01	1.90E-01	98.960	% Recovery

Final page for worklist# 6566

Analyst Signature **Date** **Analyst Signature** **Date**

3/25/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Worklist Report for Worklist# 6565

Analyst: akl **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	2.18E-04	2.22E-4	101.830	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	7.71E-01	0.770	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	<1.91E-1		uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	0.00E+00	1.00E+00	0.000	uCi/g
4	SAMPLE	S95T003663	0	Z	@BETA-01	BETA-01	SOLID	N/A	1.95E+03	0.286	uCi/g
4	SAMPLE	S95T003663	0	Z	@BETA-01	BETA-01E	SOLID	N/A	2.49E-01	0.000	% Ct. Error
5	DUP	S95T003663	0	Z	@BETA-01	BETA-01	SOLID	1.95E+3	1.82E+3	6.900	RPD
5	DUP	S95T003663	0	Z	@BETA-01	BETA-01E	SOLID	1.00	2.55E-01	0.260	% Ct. Error
6	SPK	S95T003663	0	Z	@BETA-01	BETA-01	SOLID	1.93E-01	1.91E-01	98.960	% Recovery
7	SAMPLE	S95T003664	0	Z	@BETA-01	BETA-01	SOLID	N/A	2.09E+03	0.428	uCi/g
7	SAMPLE	S95T003664	0	Z	@BETA-01	BETA-01E	SOLID	N/A	2.94E-01	0.000	% Ct. Error
8	DUP	S95T003664	0	Z	@BETA-01	BETA-01	SOLID	2.09E+3	1.94E+3	7.440	RPD
8	DUP	S95T003664	0	Z	@BETA-01	BETA-01E	SOLID	1.00	3.12E-01	0.310	% Ct. Error

Final page for worklist# 6565

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date

Corrected Actual + yield BLNK/BKG values.

3/25/96

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

TB : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	65652	66877
6565	COUNT TIME in MINUTES	(CT)	30	30
Matrix	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2176.400	2217.233
Batch Number	Standard Value in µCi/mL		2.18E-04	
96002229	Concentration in µCi/L	=	2.20E-01	
Rerun	Replicate Concentration in µCi/L	=	2.24E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	2.2212E-01	
Sample Prep				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	TOTAL BETA µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)			
WL6565	TOTAL BETA µCi/mL = TOTAL BETA µCi/L / 1000mL/L			
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
CJO				
Chemist				
SLF	TOTAL BETA CONTRATION in µCi/mL		2.22E-04	
Analyst				
AKL				
Date Complete				
03/19/96	RELATIVE COUNTING ERROR	=	0.8%	
Analysis Date				
03/18/96				
Analysis Time				
01:00 PM				
Sample Point				
BY104 ROTARY				

DETECTION LEVEL
3.08E-07 µCi/mL

Analyst:		CJO	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

TB : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	344	376
6565	COUNT TIME in MINUTES	(CT)	30	30
A1 or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1712	2.1712
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.476	2.025

Batch Number		
96002229	Blank Concentration in µCi/g	< 1.39E-01
Rerun	Replicate Concentration in µCi/g	< 1.91E-01
0	Maximum Concentration in µCi/g	< 1.9053E-01

Sample Prep: N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample #:

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Instrument Code: WB27807

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By: CJO

Chemist: SLF

TOTAL BETA in µCi/g (Maximum) =	< 1.91E-01	DETECTION LEVEL
LESS Than Value was Determined from Lc.		2.86E-01 µCi/g
RELATIVE COUNTING ERROR	500.0%	

Analyst: AKL

Date Complete: 03/19/96

Analysis Date: 03/18/96

Analysis Time: 01:00 PM

Sample Point: BY104 ROTARY

Analyst:		AKL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/25 96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

TB : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Cell	GROSS COUNTS	(GC)	622191	625049
6565	COUNT TIME in MINUTES	(CT)	30	30
Test No. 2	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1712	2.1712
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		20727.700	20822.967

Batch Number		
96002229	Blank Concentration in µCi/g	1.95E+03
Rerun	Replicate Concentration in µCi/g	1.96E+03
0	Average Concentration in µCi/g	1.9543E+03

Sample Prep
FUS-ZR01

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample #
S95T003663

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Instrument Code
WB27807

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By
CJO

Chemist
SLF

TOTAL BETA in µCi/g (Average) =	1.95E+03	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.2%	2.86E-01 µCi/g

Analyst
AKL

Date Complete
03/19/96

Analysis Date
03/18/96

Analysis Time
01:00 PM

Sample Point
BY104 ROTARY

Analyst:		AKL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

TB : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	589731	604221
6565	COUNT TIME in MINUTES	(CT)	30	30
Work Order	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2336	2.2336
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		19645.700	20128.700

Batch Number	
96002229	Blank Concentration in µCi/g 1.80E+03
Rerun	Replicate Concentration in µCi/g 1.84E+03
0	Average Concentration in µCi/g 1.8185E+03
Sample Prep	
FUS-ZR01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T003663	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
CJO	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.82E+03
Analyst	
AKL	
Date Complete	
03/19/96	RELATIVE COUNTING ERROR 0.3%
Analysis Date	
03/18/96	
Analysis Time	
01:00 PM	
Sample Point	
BY104 ROTARY	

DETECTION LEVEL
2.78E-01 µCi/g

Analyst:		AKL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

TB : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	399158	394595
6565	COUNT TIME in MINUTES	(CT)	10	10
Test or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1712	2.1712
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96002229	SPIKE VALUE in µCi/mL	(SVal)	1.9254E-01	1.9254E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
0	SAMPLE + SPIKE µCi/g	(S+S)	3.75E+03	3.71E+03
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.9543E+03	
FUS-ZR01				
Sample #				
S95T003663	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27807	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
CJO	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
03/19/96				
Analysis Date				
03/18/96	QC ACTUAL	=	1.93E-01	
Analysis Time	QC FOUND	=	1.91E-01	
01:00 PM	AVG. PERCENT SPIKE RECOVERY	=	99.3%	
Sample Point				
BY104 ROTARY				

Analyst:		CJO	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

SPIKE.WB1 Rev. 1.0 508101MU

WORKBOOK PAGE: SAM7

TB : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	447618	446628
6565	COUNT TIME in MINUTES	(CT)	30	30
Alt. or TB #	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.750	0.750
Test Code	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.968	0.968
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14908.600	14875.600

Batch Number		
96002229	Blank Concentration in µCi/g	2.10E+03
Rerun	Replicate Concentration in µCi/g	2.09E+03
0	Average Concentration in µCi/g	2.0948E+03

Sample Prep: FUS-ZR01

Sample #: S95T003664

Instrument Code: WB27807

Prepared By: CJO

Chemist: SLF

Analyst: AKL

Date Complete: 03/19/96

Analysis Date: 03/18/96

Analysis Time: 01:00 PM

Sample Point: BY104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA in µCi/g (Average)	=	2.09E+03	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	4.28E-01 µCi/g

Analyst:		AKL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

WHC-SD-WM-DP-164, REV. 1

TB : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Unit	GROSS COUNTS	(GC)	399576	395144
6565	COUNT TIME in MINUTES	(CT)	30	30
Lot Id #	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.750	0.750
Digest Code	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.9268	0.9268
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13307.200	13159.467

Batch Number		
96002229	Blank Concentration in µCi/g	1.96E+03
Rerun	Replicate Concentration in µCi/g	1.93E+03
0	Average Concentration in µCi/g	1.9442E+03

Sample Prep
FUS-ZR01

Sample #
S95T003664

Instrument Code
WB27807

Prepared By
CJO

Chemist
SLF

Analyst
AKL

Date Complete
03/19/96

Analysis Date
03/18/96

Analysis Time
01:00 PM

Sample Point
BY104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA in µCi/g (Average)	=	1.94E+03	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	4.47E-01 µCi/g

Analyst:		AKL	Date: 19-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

1449

LABCORE Data Entry Template for Worklist# 6566

Analyst: AP **Instrument:** AB00 14 **Book#** 43B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T003788	0	Z	@BETA-01	SOLID	95000200	BY104 ROTARY
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T003788	0	Z	@BETA-01	SOLID		
6	SPK	S95T003788	0	Z	@BETA-01	SOLID		

Final page for worklist # 6566

Anthony Pirrello 3-22-96
Analyst Signature **Date**

Sherman L Walker 3-25-96
Analyst Signature **Date**

M Sieg 3/25/96

Data Entry Comments: used .500mL sample TO 10mL H_2O mount .500mL

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6565

Analyst: akl **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01 BETA-01	SOLID	2.18E-04	2.22E-4	101.830	% Recovery
1	STD		0		@BETA-01 BETA-01E	SOLID	1.00	7.71E-01	0.770	% Ct. Error
2	BLNK-PREP		0		@BETA-01 BETA-01	SOLID	1	<1.91E-1		uCi/g
2	BLNK-PREP		0		@BETA-01 BETA-01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@BETA-01 BETA-01	SOLID	1.00E+00	1.00E+00	1.000	uCi/g
4	SAMPLE	S95T003663	0	Z	@BETA-01 BETA-01	SOLID	N/A	1.95E+03	0.286	uCi/g
4	SAMPLE	S95T003663	0	Z	@BETA-01 BETA-01E	SOLID	N/A	2.49E-01	0.000	% Ct. Error
5	DUP	S95T003663	0	Z	@BETA-01 BETA-01	SOLID	1.95E+3	1.82E+3	6.900	RPD
5	DUP	S95T003663	0	Z	@BETA-01 BETA-01E	SOLID	1.00	2.55E-01	0.260	% Ct. Error
6	SPK	S95T003663	0	Z	@BETA-01 BETA-01	SOLID	1.93E-01	1.91E-01	98.960	% Recovery
7	SAMPLE	S95T003664	0	Z	@BETA-01 BETA-01	SOLID	N/A	2.09E+03	0.428	uCi/g
7	SAMPLE	S95T003664	0	Z	@BETA-01 BETA-01E	SOLID	N/A	2.94E-01	0.000	% Ct. Error
8	DUP	S95T003664	0	Z	@BETA-01 BETA-01	SOLID	2.09E+3	1.94E+3	7.440	RPD
8	DUP	S95T003664	0	Z	@BETA-01 BETA-01E	SOLID	1.00	3.12E-01	0.310	% Ct. Error

Final page for worklist# 6565

Analyst Signature **Date** **Analyst Signature** **Date**

3/25/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Worklist Report for Worklist# 6566

Analyst: adp **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01 BETA-01	SOLID	2.18E-04	2.17E-4	99.540	% Recovery
1	STD		0		@BETA-01 BETA-01E	SOLID	1.00	7.80E-01	0.780	% Ct. Error
2	BLNK-PREP		0		@BETA-01 BETA-01	SOLID	1	1.64E-1	0.160	uCi/g
2	BLNK-PREP		0		@BETA-01 BETA-01E	SOLID	1.00	2.78E+01	27.800	% Ct. Error
3	BLNK/BKG		0		@BETA-01 BETA-01	SOLID	0.00E+00	1.61E+00	0.000	uCi/g
4	SAMPLE	S95T003788	0	Z	@BETA-01 BETA-01	SOLID	N/A	5.05E+02	6.500e-002	uCi/g
4	SAMPLE	S95T003788	0	Z	@BETA-01 BETA-01E	SOLID	N/A	2.31E-01	0.000	% Ct. Error
5	DUP	S95T003788	0	Z	@BETA-01 BETA-01	SOLID	5.05E+2	4.64E+2	8.460	RPD
5	DUP	S95T003788	0	Z	@BETA-01 BETA-01E	SOLID	1.00	2.41E-01	0.240	% Ct. Error
6	SPK	S95T003788	0	Z	@BETA-01 BETA-01	SOLID	1.92E-01	1.90E-01	98.960	% Recovery

Final page for worklist# 6566

Analyst Signature **Date**

Analyst Signature **Date**

Reviewer Signature **Date**

Corrected actual + yield values for BLNK/BKG.
[illegible]
3/25/96

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

TB : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	64233	65040
6566	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	13	13
TB	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2128.100	2155.000
Batch Number	Standard Value in µCi/mL		2.18E-04	
96002230	Concentration in µCi/L	=	2.15E-01	
Rerun	Replicate Concentration in µCi/L	=	2.18E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	2.1653E-01	

Sample Prep: N/A

Sample #: WL6566

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: ADP

Date Complete: 03/23/96

Analysis Date: 03/23/96

Analysis Time:

Sample Point: BY104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

TOTAL BETA µCi/mL = TOTAL BETA µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

				DETECTION LEVEL
TOTAL BETA CONCENTRATION in µCi/mL	=	2.17E-04		
RELATIVE COUNTING ERROR	=	0.8%		3.20E-07 µCi/mL

Analyst:		SLH	Date: 23-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

TB : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	645	613
6566	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	13	13
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	21	21
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0668	2.0668
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.500	7.433
Batch Number				
96002230	Blank Concentration in µCi/g		1.75E-01	
Rerun	Replicate Concentration in µCi/g		1.53E-01	
0	Average Concentration in µCi/g		1.6369E-01	

Sample Prep: N/A

Sample #: WL6566

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: ADP

Date Complete: 03/23/96

Analysis Date: 03/23/96

Analysis Time:

Sample Point: BY104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA in µCi/g (Average)	=	1.64E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		27.8%	6.50E-02 µCi/g

Analyst:	ADP		Date: 23-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

TB : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	722639	753035
6566	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	13	13
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	21	21
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0668	2.0668
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		24074.967	25088.167

Batch Number	
96002230	Blank Concentration in µCi/g 4.95E+02
Rerun	Replicate Concentration in µCi/g 5.15E+02
0	Average Concentration in µCi/g 5.0508E+02
Sample Prep	
FUS-ZR01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T003788	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 5.05E+02
Analyst	
ADP	
Date Complete	
03/23/96	RELATIVE COUNTING ERROR 0.2%
Analysis Date	
03/23/96	
Analysis Time	
Sample Point	
BY104 ROTARY	

DETECTION LEVEL
6.50E-02 µCi/g

Analyst:		ADP	Date: 23-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

TB : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	669936	665217
6566	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	13	13
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	21	21
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0348	2.0348
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		22318.200	22160.900

Batch Number		
96002230	Blank Concentration in µCi/g	4.66E+02
Rerun	Replicate Concentration in µCi/g	4.63E+02
0	Average Concentration in µCi/g	4.6414E+02

Sample Prep: FUS-ZR01

Sample #: S95T003788

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: ADP

Date Complete: 03/23/96

Analysis Date: 03/23/96

Analysis Time:

Sample Point: BY104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA in µCi/g (Average)	=	4.64E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.2%	6.60E-02 µCi/g

Analyst:		ADP	Date: 23-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

TB : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	424698	443781
6566	COUNT TIME in MINUTES	(CT)	10	10
AT or TB ?	BACKGROUND in cpm	(BKG)	13	13
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	21	21
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0668	2.0668
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96002230	SPIKE VALUE in µCi/mL	(SVal)	1.9248E-01	1.9248E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
0	SAMPLE + SPIKE µCi/g	(S+S)	8.72E+02	9.12E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		5.0508E+02	
FUS-ZR01				
Sample #				
S95T003788	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27807	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
ADP				
Date Complete				
03/23/96				
Analysis Date				
03/23/96	QC ACTUAL	=	1.92E-01	
Analysis Time	QC FOUND	=	1.90E-01	
	AVG. PERCENT SPIKE RECOVERY	=	98.9%	
Sample Point				
BY104 ROTARY				

Analyst:		SLH	Date: 23-Mar-96
Signature of Chemist:		SLF	Date: 3/25/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 6807

Analyst: ADP **Instrument:** AB00 13 **Book#** 43B56

Method: LA-508-101 Rev/Mod D-2 WHC-SD-WM-DP-164, REV. 1

Worklist Comment: Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T003811	0	F	@BETA-01	SOLID	95000200	BY104 ROTARY
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T003811	0	F	@BETA-01	SOLID		
6	SPK	S95T003811	0	F	@BETA-01	SOLID		

Final page for worklist # 6807

Anthony Pierantoni 3-21-96
Analyst Signature **Date**

[illegible] 3/22/96
Analyst Signature **Date**

Jill Hogan 3/26/96

Data Entry Comments: BLNK value indicates possible contamination, however levels are insignificant compared to sample results. No rerun requested. [illegible] 3/27/96

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6807

Analyst: adp **Instrument:** AB13 **Book#** _____

Method: _____ Rev/Mod _____ WHC-SD-WM-DP-164, REV. 1

Worklist Comment: Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	2.18E-04	2.13E-4	97.710	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	7.53E-01	0.750	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	4.80E-2	5.000e-002	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	3.88E+01	38.800	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	2.46E+00	2.460	uCi/g
4	SAMPLE	S95T003811	0	F	@BETA-01	BETA-01	SOLID	N/A	1.67E+02	1.440e-002	uCi/g
4	SAMPLE	S95T003811	0	F	@BETA-01	BETA-01E	SOLID	N/A	3.10E-01	0.000	% Ct. Error
5	DUP	S95T003811	0	F	@BETA-01	BETA-01	SOLID	1.67E+2	1.65E+2	1.200	RPD
5	DUP	S95T003811	0	F	@BETA-01	BETA-01E	SOLID	1.00	3.11E-01	0.310	% Ct. Error
6	SPK	S95T003811	0	F	@BETA-01	BETA-01	SOLID	1.93E-01	2.07E-01	107.250	% Recovery

Final page for worklist# 6807

Analyst Signature **Date** **Analyst Signature** **Date**

3/28/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Worklist Report for Worklist# 6807

Analyst: adp **Instrument:** AB13 **Book#** _____

Method: _____ Rev/Mod _____ WHC-SD-WM-DP-164, REV. 1

Worklist Comment: Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		●BETA-01	BETA-01	SOLID	2.18E-04	2.13E-4	97.710	% Recovery
1	STD		0		●BETA-01	BETA-01E	SOLID	1.00	7.53E-01	0.750	% Ct. Error
2	BLNK-PREP		0		●BETA-01	BETA-01	SOLID	1	4.80E-2	5.000e-002	uCi/g
2	BLNK-PREP		0		●BETA-01	BETA-01E	SOLID	1.00	3.88E+01	38.800	% Ct. Error
3	BLNK/BKG		0		●BETA-01	BETA-01	SOLID	0.00E+00	2.46E+00	0.000	uCi/g
4	SAMPLE	S95T003811	0	F	●BETA-01	BETA-01	SOLID	N/A	1.67E+02	1.440e-002	uCi/g
4	SAMPLE	S95T003811	0	F	●BETA-01	BETA-01E	SOLID	N/A	3.10E-01	0.000	% Ct. Error
5	DUP	S95T003811	0	F	●BETA-01	BETA-01	SOLID	1.67E+2	1.65E+2	1.200	RPD
5	DUP	S95T003811	0	F	●BETA-01	BETA-01E	SOLID	1.00	3.11E-01	0.310	% Ct. Error
6	SPK	S95T003811	0	F	●BETA-01	BETA-01	SOLID	1.93E-01	2.07E-01	107.250	% Recovery

Final page for worklist# 6807

Analyst Signature **Date** **Analyst Signature** **Date**

Reviewer Signature **Date**

Corrected QC Actual + yield for BLNK/BKG.
3/27/96

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

TB : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
DETECTOR NUMBER			13	13
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	70792	66408
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	8	8
SAMPLE SIZE in mL		(SS)	10.000	10.000
DILUTION FACTOR		(DF)	1	1
STANDARD BOOK NUMBER		(Std BN)	43B56	43B56
EFFICIENCY FACTOR		(EFF)	0.4892	0.4892
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			2351.733	2272.267
Standard Value in µCi/mL			2.18E-04	
Concentration in µCi/L	=		2.17E-01	
Replicate Concentration in µCi/L	=		2.09E-01	
AVERAGE CONCENTRATION in µCi/L	=		2.1289E-01	

Type	STD
Work List	6807
AT or TB ?	TB
Test Code	@BETA-01
Matrix	LIQUID
Batch Number	96002506
Rerun	0
Sample Prep	N/A
Sample #	WL6807
Instrument Code	WB27810
Prepared By	MCB
Chemist	SLF
Analyst	ADP
Date Complete	03/22/96
Analysis Date	03/21/96
Analysis Time	10:40 PM
Sample Point	BY-104 ROTARY

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

TOTAL BETA µCi/mL = TOTAL BETA µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
TOTAL BETA CONCENTRATION in µCi/mL	=	2.13E-04	2.30E-07 µCi/mL
RELATIVE COUNTING ERROR	=	0.8%	

Analyst:	MCB	Date:	22-Mar-96
Signature of Chemist:	SLF	Date:	3/27/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

TB : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		13	13
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	817	364
6807	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.242	2.242
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		19.233	4.133

Batch Number	
96002506	Blank Concentration in µCi/g 7.90E-02
Rerun	Replicate Concentration in µCi/g 1.70E-02
0	Average Concentration in µCi/g 4.7983E-02
Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
WL6807	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 4.80E-02
Analyst	
ADP	
Date Complete	
03/22/96	RELATIVE COUNTING ERROR 38.8%
Analysis Date	
03/21/96	
Analysis Time	
10:40 PM	
Sample Point	
BY-104 ROTARY	

DETECTION LEVEL
1.03E-02 µCi/g

Analyst:		ADP	Date: 22-Mar-96
Signature of Chemist:		SLF	Date: 3/27/96

BLANK.WB1 Rev. 1.0 508101WL

WORKBOOK PAGE: SAM4

TB : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	411744	400691
6807	COUNT TIME in MINUTES	(CT)	10	10
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.242	2.242
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		41166.400	40061.100

Batch Number	
96002506	Blank Concentration in µCi/g 1.69E+02
Rerun	Replicate Concentration in µCi/g 1.65E+02
0	Average Concentration in µCi/g 1.6680E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T003811	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.67E+02
Analyst	
ADP	
Date Complete	
03/22/96	RELATIVE COUNTING ERROR 0.3%
Analysis Date	
03/21/96	
Analysis Time	
10:40 PM	
Sample Point	
BY-104 ROTARY	

DETECTION LEVEL
1.44E-02 µCi/g

Analyst:		ADP	Date: 22-Mar-96
Signature of Chemist:		SLF	Date: 3/27/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

WHC-SD-WM-DP-164, REV. 1

TB : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	404512	397425
6807	COUNT TIME in MINUTES	(CT)	10	10
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2308	2.2308
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		40443.200	39734.500

Batch Number	
96002506	
Rerun	
0	
Sample Prep	
FUSION01	
Sample #	
S95T003811	
Instrument Code	
WB27810	
Prepared By	
MCB	
Chemist	
SLF	
Analyst	
ADP	
Date Complete	
03/22/96	
Analysis Date	
03/21/96	
Analysis Time	
10:40 PM	
Sample Point	
BY-104 ROTARY	

Blank Concentration in µCi/g	1.67E+02
Replicate Concentration in µCi/g	1.64E+02
Average Concentration in µCi/g	1.6547E+02

Rs (Sample Count Rate) = (TC / CT) - BKG

TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

TOTAL BETA in µCi/g (Average)	=	1.65E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	1.44E-02 µCi/g

Analyst:		ADP	Date: 22-Mar-96
Signature of Chemist:		SLF	Date: 3/27/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

TB : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	639685	621640
6807	COUNT TIME in MINUTES	(CT)	10	10
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.242	2.242
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96002506	SPIKE VALUE in µCi/mL	(SVal)	1.9251E-01	1.9251E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
0	SAMPLE + SPIKE µCi/g	(S+S)	2.63E+02	2.55E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.6680E+02	
FUSION01				
Sample #				
S95T003811	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27810	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
ADP				
Date Complete				
03/22/96				
Analysis Date				
03/21/96	QC ACTUAL	=	1.93E-01	
Analysis Time	QC FOUND	=	2.07E-01	
10:40 PM	AVG. PERCENT SPIKE RECOVERY	=	107.4%	
Sample Point				
BY-104 ROTARY				

Analyst:		MCB	Date: 22-Mar-96
Signature of Chemist:		SLF	Date: 3/27/96

SPIKE.WB1 Rev. 1.0 50810WML

LABCORE Completed Worklist Report for Worklist# 4305

Analyst: slh **Instrument:** GEA02 **Book#** 144B52

Method: LA-548-121 Rev/Mod D-1 WHC-SD-WM-DP-164, REV. 1

Worklist Comment: GEA BY-104; use 1 ml sample. R(0) -PPB

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	SOLID	0.0211	2.06e-02	97.630	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1	1.53	1.530	% Ct. Error
1	STD		0		@GEA-01	CS13702	SOLID	0.0254	2.50e-02	98.430	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1	1.65	1.650	% Ct. Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1	<1.41e-2		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1	<3.32e-2		uCi/g
3	SAMPLE	S95T003530	0	Z	@GEA-01	CO60-02	SOLID	N/A	5.317e-02	2.930e-004	uCi/g
3	SAMPLE	S95T003530	0	Z	@GEA-01	CO60-02E	SOLID	N/A	23.71	0.000	% Ct. Error
3	SAMPLE	S95T003530	0	Z	@GEA-01	CS13702	SOLID	N/A	9.403e+01	1.000e-003	uCi/g
3	SAMPLE	S95T003530	0	Z	@GEA-01	CS13702E	SOLID	N/A	.55	0.000	% Ct. Error
4	DUP	S95T003530	0	Z	@GEA-01	CO60-02	SOLID	5.32e-02	5.30e-02	0.380	RPD
4	DUP	S95T003530	0	Z	@GEA-01	CO60-02E	SOLID	1	26.11	26.110	% Ct. Error
4	DUP	S95T003530	0	Z	@GEA-01	CS13702	SOLID	9.40e+01	9.99e+01	6.090	RPD
4	DUP	S95T003530	0	Z	@GEA-01	CS13702E	SOLID	1.00	.50	0.500	% Ct. Error
5	SAMPLE	S95T003649	0	Z	@GEA-01	CO60-02	SOLID	N/A <	1.883e-02	2.930e-004	uCi/g
5	SAMPLE	S95T003649	0	Z	@GEA-01	CO60-02E	SOLID	N/A	n/a	0.000	% Ct. Error
5	SAMPLE	S95T003649	0	Z	@GEA-01	CS13702	SOLID	N/A	1.067e+02	1.000e-003	uCi/g
5	SAMPLE	S95T003649	0	Z	@GEA-01	CS13702E	SOLID	N/A	.48	0.000	% Ct. Error
6	DUP	S95T003649	0	Z	@GEA-01	CO60-02	SOLID	<1.88e-2	<1.89e-2		RPD
6	DUP	S95T003649	0	Z	@GEA-01	CO60-02E	SOLID	1	n/a		% Ct. Error
6	DUP	S95T003649	0	Z	@GEA-01	CS13702	SOLID	1.07e+02	9.99e+01	6.860	RPD
6	DUP	S95T003649	0	Z	@GEA-01	CS13702E	SOLID	1.00	.51	0.510	% Ct. Error

Final page for worklist# 4305

Analyst Signature **Date** **Analyst Signature** **Date**

R A Jones 12/20/95
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 4305

Analyst: SLH **Instrument:** GEA00 2 **Book#** 144B52

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: GEA BY-104; use 1 ml sample. R(0) -PPB

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S95T003530	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S95T003530	0	Z	@GEA-01	SOLID		
5	SAMPLE	S95T003649	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S95T003649	0	Z	@GEA-01	SOLID		

Final page for worklist # 4305

Sandra Hood Boatright 12-17-95
Analyst Signature Date

[illegible] 12/18/95
Analyst Signature Date

SE Hogan 12/19/95

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-DEC-1995 03:14:45.21                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4305
Sample ID:               WL405-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2358.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:07.39 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-DEC-1995 02:23:58.89
Decayed to:              18-DEC-1995 02:23:58.89
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: Em Barlow

Verified by: RB Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	608.61*	68	1.63	1217.26	1214	7	94.0			
0	661.43*	17976	1.52	1322.87	1315	15	1.6		CS-137	24.9
0	1172.86	10568	1.87	2345.77	2336	19	2.2		CO-60	20.8
0	1332.09	9423	1.98	2664.34	2654	21	2.2		CO-60	20.5
0	1764.76*	16	1.33	3530.14	3524	14	97.4			

Sample ID : WL405-STD
Acquisition date : 18-DEC-1995 02:23:58

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.063E+01	2.063E+01	0.032E+01	1.53	
CS-137	30.00Y	1.000	2.495E+01	2.495E+01	0.041E+01	1.65	
		Total Activity :	4.558E+01	4.558E+01			
		Grand Total Activity :	4.558E+01	4.558E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL405-STD
Acquisition date : 18-DEC-1995 02:23:58

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	942.	477.59	1.2450E+00
NA-22	82.	1274.53	8.8354E-02
NA-24	23.	1368.55	4.9978E-02
K-40	115.	1460.75	1.0945E+00
SC-46	407.	1120.55	1.7647E-01
CR-51	980.	320.08	9.4753E-01
MN-54	495.	834.83	1.4895E-01
CO-56	547.	846.76	1.5866E-01
CO-57	1108.	122.06	7.4436E-02
CO-58	513.	810.78	1.4882E-01
FE-59	538.	1099.25	3.5274E-01
ZN-65	475.	1115.55	3.7446E-01
SE-75	1134.	264.66	1.5380E-01
KR-85	703.	514.00	2.7317E+01
SR-85	703.	514.01	1.2353E-01
Y-88	8.	1836.06	3.8035E-02
Y-90	11.	1760.70	1.5028E-01
Y-91	134.	1204.67	3.6012E+01
NB-94	599.	871.09	1.6999E-01
NB-95	467.	765.78	1.3477E-01
ZR-95	437.	756.73	2.3639E-01
RU-103	771.	497.08	1.3266E-01
RURH-106	496.	621.93	2.3463E+00
AG-108m	454.	722.94	1.3914E-01
CD-109	975.	88.03	2.3971E+00
AG-110M	1074.	657.76	1.8953E-01
SN-113	971.	391.69	1.7146E-01
TE-123m	1129.	159.00	7.5173E-02
SB-124	519.	602.73	1.1872E-01
SB-125	1019.	427.89	4.1235E-01
TE-125m	1016.	109.27	2.3629E+01
I-129	975.	39.60	0.0000E+00
I-131	970.	364.48	1.2837E-01
XE-131m	1150.	163.93	3.2927E+00
BA-133	889.	356.02	1.5800E-01
CS-134	528.	604.70	1.2025E-01
CS-136	487.	818.51	1.4585E-01
CS-138	19.	1435.86	9.9412E-02
CE-139	1142.	165.85	8.0859E-02
BA-140	593.	537.31	4.6389E-01
LA-140	14.	1596.21	4.6856E-02
CE-141	1106.	145.44	1.2723E-01
CE-144	1212.	133.51	5.8215E-01
CEPR-144	1212.	133.51	1.1634E+00
EU-152	18.	1408.01	2.1301E-01
EU-154	82.	1274.51	2.5625E-01
EU-155	988.	86.54	2.7341E-01
HF-181	824.	482.18	1.5101E-01
TA-182	958.	67.75	3.7283E-01
HG-203	1068.	279.20	1.1109E-01
BI-207	491.	569.70	1.1024E-01

Sample ID : WL405-STD Acquisition date : 18-DEC-1995 02:23:58

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1097.	277.36	1.4466E+00
PB-210	964.	46.50	0.0000E+00
BI-212	416.	727.18	1.8272E+00
PB-212	1319.	238.63	2.0721E-01
BI-214	531.	609.31	2.6419E-01
PB-214	992.	351.92	5.1203E-01
RA-224	1283.	240.99	2.2684E+00
RA-226	1171.	186.10	1.9960E+00
AC-228	652.	911.21	6.9265E-01
TH-228	923.	84.37	7.1634E+00
TH-229	983.	88.47	3.4895E-01
U-232	921.	57.78	1.3672E+02
PA-233	978.	312.17	2.4273E-01
PA-234M	552.	1001.03	3.1368E-01
TH-234	948.	63.29	4.2288E+00
U-235	1170.	185.71	1.2128E-01
NP-237	984.	86.48	7.2281E-01
U-237	920.	59.54	6.9146E-01
NP-238	606.	984.45	6.9092E-01
NP-239	1058.	106.12	3.0731E-01
PU-239	1130.	129.30	9.8137E+02
AM-241	920.	59.54	6.6326E-01
AM-243	1010.	74.67	2.0363E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-DEC-1995 04:17:24.85                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-164, REV. 1

```
Worklist #:              4305
Sample ID:               WL4305-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: Eric Baca

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2359.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.46 sec
Dead Time:               0.0%
```

Verified by: RA Jones

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-DEC-1995 03:26:45.39
Decayed to:              18-DEC-1995 03:26:45.39
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	351.47*	33	1.09	703.13	698	11	87.4			

Sample ID : WL4305-BLK
Acquisition date : 18-DEC-1995 03:26:45

Total number of lines in spectrum 1
Number of unidentified lines 0
Number of lines tentatively identified by NID 1 100.00%
**** There are no nuclides meeting summary criteria ****

WHC-SD-WM-DP-164, REV. 1

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL4305-BLK

Acquisition date : 18-DEC-1995 03:26:45

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	40.	477.59	2.5773E-01
NA-22	8.	1274.53	2.7452E-02
NA-24	5.	1368.55	2.3557E-02
K-40	122.	1460.75	1.1257E+00
SC-46	30.	1120.55	4.7663E-02
CR-51	44.	320.08	2.0091E-01
MN-54	19.	834.83	2.9144E-02
CO-56	19.	846.76	2.9559E-02
CO-57	59.	122.06	1.7211E-02
CO-58	15.	810.78	2.5252E-02
FE-59	15.	1099.25	5.8352E-02
CO-60	8.	1332.50	2.8618E-02
ZN-65	12.	1115.55	5.9693E-02
SE-75	57.	264.66	3.4562E-02
KR-85	48.	514.00	7.1143E+00
SR-85	48.	514.01	3.2176E-02
Y-88	2.	1836.06	1.8630E-02
Y-90	6.	1760.70	1.0910E-01
Y-91	13.	1204.67	1.1246E+01
NB-94	13.	871.09	2.5162E-02
NB-95	21.	765.78	2.8409E-02
ZR-95	20.	756.73	5.0064E-02
RU-103	41.	497.08	3.0421E-02
RURH-106	26.	621.93	5.4013E-01
AG-108m	26.	722.94	3.3559E-02
CD-109	83.	88.03	6.9933E-01
AG-110M	28.	657.76	3.0823E-02
SN-113	30.	391.69	3.0376E-02
TE-123m	68.	159.00	1.8486E-02
SB-124	29.	602.73	2.8254E-02
SB-125	41.	427.89	8.2515E-02
TE-125m	72.	109.27	6.2787E+00
I-129	57.	39.60	0.0000E+00
I-131	35.	364.48	2.4290E-02
XE-131m	82.	163.93	8.8176E-01
BA-133	34.	356.02	3.0726E-02
CS-134	28.	604.70	2.7895E-02
CS-136	20.	818.51	2.9437E-02
CS-137	109.	661.66	6.7500E-02
CS-138	2.	1435.86	3.2500E-02
CE-139	78.	165.85	2.1160E-02
BA-140	22.	537.31	8.9572E-02
LA-140	1.	1596.21	1.2336E-02
CE-141	74.	145.44	3.2881E-02
CE-144	77.	133.51	1.4709E-01
CEPR-144	77.	133.51	2.9389E-01
EU-152	8.	1408.01	1.3909E-01
EU-154	8.	1274.51	8.0159E-02
EU-155	84.	86.54	7.9852E-02
HF-181	31.	482.18	2.9088E-02
TA-182	56.	67.75	9.0388E-02

1474

$\frac{8.0159^{-2}}{\cancel{2.301\,2M}\ 2.0312} = 3.946^{-2}$

Sample ID : WL4305-BLK Acquisition date : 18-DEC-1995 03:26:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
HG-203	47.	279.20	2.3195E-02
BI-207	33.	569.70	2.8569E-02
TL-208	58.	277.36	3.3300E-01
PB-210	51.	46.50	0.0000E+00
BI-212	24.	727.18	4.4012E-01
PB-212	83.	238.63	5.2127E-02
BI-214	67.	609.31	9.3638E-02
PB-214	81.	351.92	1.4573E-01
RA-224	80.	240.99	5.6813E-01
RA-226	86.	186.10	5.4048E-01
AC-228	24.	911.21	1.3408E-01
TH-228	81.	84.37	2.1191E+00
TH-229	81.	88.47	9.9938E-02
U-232	66.	57.78	3.6509E+01
PA-233	41.	312.17	4.9892E-02
PA-234M	18.	1001.03	5.6436E-02
TH-234	68.	63.29	1.1284E+00
U-235	79.	185.71	3.1611E-02
NP-237	85.	86.48	2.1231E-01
U-237	57.	59.54	1.7228E-01
NP-238	14.	984.45	1.0368E-01
NP-239	71.	106.12	7.9440E-02
PU-239	85.	129.30	2.6966E+02
AM-241	57.	59.54	1.6524E-01
AM-243	71.	74.67	5.3920E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-DEC-1995 05:10:09.92                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4305
Sample ID:               S95T3530-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2360.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:19.17 sec
Dead Time:               0.6%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-DEC-1995 04:19:13.12
Decayed to:              18-DEC-1995 04:19:13.12
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

     >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: [signature]

Verified by: [signature]

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.46	500	1.75	247.34	244	8	51.2		CO-57	0.240
									EU-154	0.509
0	661.41*	137743	1.53	1322.84	1315	17	0.6		CS-137	191.
0	723.14	42	0.87	1446.29	1442	9	65.9		EU-154	0.265
0	873.28	19	0.95	1746.55	1744	5	80.9		EU-154	0.238
0	1004.21	35	1.25	2008.43	2005	12	66.5		EU-154	0.328
0	1173.07	45	1.68	2346.19	2342	9	40.2		CO-60	8.769E-02
0	1274.37	62	1.39	2548.85	2542	15	25.4		EU-154	0.378
									NA-22	0.130
0	1332.14	59	1.27	2664.44	2657	12	28.6		CO-60	0.129

Summary of Nuclide Activity
Sample ID : S95T3530-SAM Acquisition date : 18-DEC-1995 04:19:13

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	8	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	8	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~1.302E-01~~	~~1.302E-01~~	~~0.331E-01~~	~~25.40~~	Eu-154
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.403E-01~~	~~2.403E-01~~	~~1.230E-01~~	~~51.18~~	Eu-154
CO-60	5.27Y	1.000	1.075E-01	1.075E-01	0.255E-01	23.71	
CS-137	30.00Y	1.000	1.912E+02	1.912E+02	0.011E+02	0.55	
~~EU~~-154	8.59Y	1.000	2.724E-01	2.724E-01	1.113E-01	40.84	
		Total Activity :	1.919E+02	1.919E+02			
		Grand Total Activity :	1.919E+02	1.919E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

$$^{154}Eu = \frac{2.724^{-1}}{2.0312} = 1.183^{-1}$$

Sample ID : S95T3530-SAM
Acquisition date : 18-DEC-1995 04:19:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4317.	477.59	2.6652E+00
NA-24	7.	1368.55	2.6870E-02
K-40	93.	1460.75	9.8251E-01
SC-46	24.	1120.55	4.3242E-02
CR-51	3581.	320.08	1.8109E+00
MN-54	30.	834.83	3.6961E-02
CO-56	30.	846.76	3.7173E-02
CO-58	39.	810.78	4.0948E-02
FE-59	16.	1099.25	6.0408E-02
ZN-65	25.	1115.55	8.6644E-02
SE-75	4028.	264.66	2.8992E-01
KR-85	2220.	514.00	4.8549E+01
SR-85	2220.	514.01	2.1952E-01
Y-88	4.	1836.06	2.5047E-02
Y-90	8.	1760.70	1.2782E-01
Y-91	15.	1204.67	1.2048E+01
NB-94	61.	871.09	5.4043E-02
NB-95	41.	765.78	3.9708E-02
ZR-95	59.	756.73	8.6788E-02
RU-103	2726.	497.08	2.4944E-01
RURH-106	941.	621.93	3.2308E+00
AG-108m	91.	722.94	6.2277E-02
CD-109	4078.	88.03	4.9031E+00
AG-110M	5556.	657.76	4.3116E-01
SN-113	3976.	391.69	3.4702E-01
TE-123m	4394.	159.00	1.4831E-01
SB-124	997.	602.73	1.6443E-01
SB-125	4559.	427.89	8.7197E-01
TE-125m	4129.	109.27	4.7626E+01
I-129	3643.	39.60	0.0000E+00
I-131	3755.	364.48	2.5259E-01
XE-131m	4355.	163.93	6.4090E+00
BA-133	3811.	356.02	3.2716E-01
CS-134	968.	604.70	1.6280E-01
CS-136	41.	818.51	4.2362E-02
CS-138	5.	1435.86	5.3046E-02
CE-139	4255.	165.85	1.5609E-01
BA-140	1659.	537.31	7.7562E-01
LA-140	4.	1596.21	2.4674E-02
CE-141	4485.	145.44	2.5622E-01
CE-144	4512.	133.51	1.1234E+00
CEPR-144	4512.	133.51	2.2448E+00
EU-152	14.	1408.01	1.8738E-01
EU-155	4078.	86.54	5.5548E-01
HF-181	3400.	482.18	3.0669E-01
TA-182	3748.	67.75	7.3750E-01
HG-203	3960.	279.20	2.1387E-01
BI-207	1030.	569.70	1.5971E-01
TL-208	4010.	277.36	2.7656E+00
PB-210	3580.	46.50	0.0000E+00
BI-212	54.	727.18	6.6092E-01

Sample ID : S95T3530-SAM Acquisition date : 18-DEC-1995 04:19:13

WHC-SD-WM-DP-164, REV.)

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PB-212	4682.	238.63	3.9045E-01
BI-214	972.	609.31	3.5752E-01
PB-214	3645.	351.92	9.8363E-01
RA-224	4602.	240.99	4.2960E+00
RA-226	5489.	186.10	4.3221E+00
AC-228	43.	911.21	1.7759E-01
TH-228	4038.	84.37	1.4981E+01
TH-229	4070.	88.47	7.0999E-01
U-232	3718.	57.78	2.7466E+02
PA-233	3708.	312.17	4.7251E-01
PA-234M	30.	1001.03	7.3603E-02
TH-234	3694.	63.29	8.3464E+00
U-235	5472.	185.71	2.6228E-01
NP-237	4080.	86.48	1.4716E+00
U-237	3707.	59.54	1.3878E+00
NP-238	30.	984.45	1.5439E-01
NP-239	4223.	106.12	6.1392E-01
PU-239	4608.	129.30	1.9819E+03
AM-241	3707.	59.54	1.3311E+00
AM-243	3898.	74.67	4.0005E-01

****
* 222-S Laboratory Counting Room 18-DEC-1995 07:30:57.43 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

WHC-SD-WM-DP-164, REV. I

Worklist #: 4305
Sample ID: S95T3530-DUP
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by:

>>>>>>>>>> COUNT INFORMATION <<<<<<<<<<

Detector ID: GEA2
File Number: dka300:[spec.GEA2]2g2361.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:23.24 sec
Dead Time: 0.8%

Verified by:

>>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<

Sample Count Time: 18-DEC-1995 06:39:55.94
Decayed to: 18-DEC-1995 06:39:55.94
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: ALJ
Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<

Date of last energy calibration: 21-MAR-1994 09:31:55.15
Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.02	444	1.23	246.47	244	7	56.7		~~CO-57~~	0.213
									EU-154	0.452
0	661.41*	167258	1.52	1322.83	1314	17	0.5		CS-137	232.
0	722.92	41	1.40	1445.84	1443	9	71.2		EU-154	0.262
0	1004.63	56	2.14	2009.26	2003	18	57.5		EU-154	0.529
0	1172.86	68	2.00	2345.77	2339	11	33.7		CO-60	0.133
0	1274.02	67	1.52	2548.16	2542	15	35.1		EU-154	0.409
									~~NA-22~~	0.141
0	1332.06	52	2.45	2664.28	2659	12	40.9		CO-60	0.113

Summary of Nuclide Activity
Sample ID : S95T3530-DUP

Acquisition date : 18-DEC-1995 06:39:55

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	7	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	7	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~1.407E-01~~	~~1.407E-01~~	~~0.494E-01~~	~~35.10~~	Eu-154
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.134E-01~~	~~2.134E-01~~	~~1.210E-01~~	~~56.71~~	Eu-154
CO-60	5.27Y	1.000	1.231E-01	1.231E-01	0.321E-01	26.11	
CS-137	30.00Y	1.000	2.321E+02	2.321E+02	0.012E+02	0.50	
EU-154	8.59Y	1.000	3.348E-01	3.348E-01	1.590E-01	47.48	
			---	---			
	Total Activity :		2.329E+02	2.329E+02			

Grand Total Activity :	2.329E+02	2.329E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

$^{154}Eu = \frac{3.348^{-1}}{\cancel{2.03192}\ 2.3212} = 1.442^{-1}$ uCi/g

Sample ID : S95T3530-DUP
Acquisition date : 18-DEC-1995 06:39:55
WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5194.	477.59	2.9234E+00
NA-24	8.	1368.55	2.9935E-02
K-40	110.	1460.75	1.0701E+00
SC-46	35.	1120.55	5.1767E-02
CR-51	4371.	320.08	2.0006E+00
MN-54	53.	834.83	4.8557E-02
CO-56	40.	846.76	4.2929E-02
CO-58	48.	810.78	4.5367E-02
FE-59	36.	1099.25	9.1071E-02
ZN-65	26.	1115.55	8.8331E-02
SE-75	5146.	264.66	3.2771E-01
KR-85	2635.	514.00	5.2885E+01
SR-85	2635.	514.01	2.3914E-01
Y-88	4.	1836.06	2.6346E-02
Y-90	10.	1760.70	1.4041E-01
Y-91	18.	1204.67	1.3337E+01
NB-94	69.	871.09	5.7521E-02
NB-95	55.	765.78	4.6370E-02
ZR-95	78.	756.73	9.9554E-02
RU-103	3256.	497.08	2.7263E-01
RURH-106	1133.	621.93	3.5460E+00
AG-108m	110.	722.94	6.8543E-02
CD-109	5034.	88.03	5.4475E+00
AG-110M	6542.	657.76	4.6783E-01
SN-113	4763.	391.69	3.7978E-01
TE-123m	5213.	159.00	1.6155E-01
SB-124	1127.	602.73	1.7488E-01
SB-125	5414.	427.89	9.5025E-01
TE-125m	4960.	109.27	5.2203E+01
I-129	4436.	39.60	0.0000E+00
I-131	4599.	364.48	2.7956E-01
XE-131m	5291.	163.93	7.0641E+00
BA-133	4565.	356.02	3.5803E-01
CS-134	1157.	604.70	1.7799E-01
CS-136	49.	818.51	4.6084E-02
CS-138	8.	1435.86	6.6733E-02
CE-139	5166.	165.85	1.7197E-01
BA-140	1968.	537.31	8.4469E-01
LA-140	6.	1596.21	3.0219E-02
CE-141	5406.	145.44	2.8129E-01
CE-144	5390.	133.51	1.2279E+00
CEPR-144	5390.	133.51	2.4535E+00
EU-152	7.	1408.01	1.3017E-01
EU-155	5132.	86.54	6.2316E-01
HF-181	4267.	482.18	3.4356E-01
TA-182	4470.	67.75	8.0538E-01
HG-203	4812.	279.20	2.3578E-01
BI-207	1347.	569.70	1.8264E-01
TL-208	4776.	277.36	3.0183E+00
PB-210	4363.	46.50	0.0000E+00
BI-212	84.	727.18	8.2179E-01

Sample ID : S95T3530-DUP Acquisition date : 18-DEC-1995 06:39:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PB-212	5699.	238.63	4.3078E-01
BI-214	1225.	609.31	4.0145E-01
PB-214	4449.	351.92	1.0875E+00
RA-224	5445.	240.99	4.6731E+00
RA-226	6429.	186.10	4.6773E+00
AC-228	39.	911.21	1.7001E-01
TH-228	4891.	84.37	1.6488E+01
TH-229	4959.	88.47	7.8374E-01
U-232	4432.	57.78	2.9987E+02
PA-233	4483.	312.17	5.1956E-01
PA-234M	44.	1001.03	8.8098E-02
TH-234	4552.	63.29	9.2652E+00
U-235	6392.	185.71	2.8348E-01
NP-237	5124.	86.48	1.6492E+00
U-237	4354.	59.54	1.5040E+00
NP-238	30.	984.45	1.5411E-01
NP-239	5164.	106.12	6.7893E-01
PU-239	5422.	129.30	2.1499E+03
AM-241	4354.	59.54	1.4427E+00
AM-243	4756.	74.67	4.4189E-01

****
* 222-S Laboratory Counting Room 18-DEC-1995 08:35:33.93 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<< WHC-SD-WM-DP-164, REV. (

Worklist #: 4305
Sample ID: S95T3649-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by: [signature] 12/18/95

>>>>>>>>>> COUNT INFORMATION <<<<<<<<<<

Detector ID: GEA2
File Number: dka300:[spec.GEA2]2g2362.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:24.46 sec
Dead Time: 0.8%

Verified by: [signature]

>>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<

Sample Count Time: 18-DEC-1995 07:44:32.28
Decayed to: 18-DEC-1995 07:44:32.28
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: ALJ
Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<

Date of last energy calibration: 21-MAR-1994 09:31:55.15
Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.40*	180407	1.53	1322.83	1314	17	0.5		CS-137	250.
0	911.40*	23	1.81	1822.79	1819	12	95.2			
0	1332.70	17	1.17	2665.56	2661	9	58.2			

Sample ID : S95T3649-SAM Acquisition date : 18-DEC-1995 07:44:32

Total number of lines in spectrum 3 WHC-SD-WM-DP-164, REV. 1
Number of unidentified lines 0
Number of lines tentatively identified by NID 3 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.504E+02	2.504E+02	0.012E+02	0.48	
		Total Activity :	2.504E+02	2.504E+02			
		Grand Total Activity :	2.504E+02	2.504E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T3649-SAM
Acquisition date : 18-DEC-1995 07:44:32

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5644.	477.59	3.0474E+00
NA-22	16.	1274.53	3.9308E-02
NA-24	6.	1368.55	2.5740E-02
K-40	121.	1460.75	1.1217E+00
SC-46	29.	1120.55	4.6819E-02
CR-51	4687.	320.08	2.0719E+00
MN-54	46.	834.83	4.5515E-02
CO-56	29.	846.76	3.6529E-02
CO-57	5290.	122.06	1.6264E-01
CO-58	47.	810.78	4.4958E-02
FE-59	16.	1099.25	6.0515E-02
CO-60	19.	1332.50	4.4104E-02
ZN-65	18.	1115.55	7.2384E-02
SE-75	5305.	264.66	3.3271E-01
KR-85	2845.	514.00	5.4960E+01
SR-85	2845.	514.01	2.4848E-01
Y-88	0.	1836.06	0.0000E+00
Y-90	4.	1760.70	8.6199E-02
Y-91	18.	1204.67	1.3198E+01
NB-94	35.	871.09	4.0848E-02
NB-95	42.	765.78	4.0226E-02
ZR-95	53.	756.73	8.2010E-02
RU-103	3652.	497.08	2.8873E-01
RURH-106	1221.	621.93	3.6805E+00
AG-108m	47.	722.94	4.4680E-02
CD-109	4781.	88.03	5.3087E+00
AG-110M	7130.	657.76	4.8840E-01
SN-113	5147.	391.69	3.9482E-01
TE-123m	5402.	159.00	1.6444E-01
SB-124	1249.	602.73	1.8412E-01
SB-125	5894.	427.89	9.9146E-01
TE-125m	4897.	109.27	5.1870E+01
I-129	4478.	39.60	0.0000E+00
I-131	4851.	364.48	2.8712E-01
XE-131m	5437.	163.93	7.1612E+00
BA-133	4831.	356.02	3.6834E-01
CS-134	1224.	604.70	1.8309E-01
CS-136	33.	818.51	3.7761E-02
CS-138	8.	1435.86	6.5231E-02
CE-139	5365.	165.85	1.7526E-01
BA-140	2087.	537.31	8.6985E-01
LA-140	5.	1596.21	2.7586E-02
CE-141	5490.	145.44	2.8346E-01
CE-144	5536.	133.51	1.2443E+00
CEPR-144	5535.	133.51	2.4863E+00
EU-152	6.	1408.01	1.1991E-01
EU-154	16.	1274.51	1.1434E-01
EU-155	4683.	86.54	5.9527E-01
HF-181	4534.	482.18	3.5415E-01
TA-182	4345.	67.75	7.9407E-01
HG-203	5149.	279.20	2.4389E-01

Sample ID : S95T3649-SAM Acquisition date : 18-DEC-1995 07:44:32

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	1437.	569.70	1.8860E-01
TL-208	5058.	277.36	3.1059E+00
PB-210	4463.	46.50	0.0000E+00
BI-212	64.	727.18	7.1517E-01
PB-212	6063.	238.63	4.4432E-01
BI-214	1304.	609.31	4.1416E-01
PB-214	4746.	351.92	1.1234E+00
RA-224	5936.	240.99	4.8794E+00
RA-226	6881.	186.10	4.8391E+00
AC-228	50.	911.21	1.9114E-01
TH-228	4619.	84.37	1.6023E+01
TH-229	4791.	88.47	7.7035E-01
U-232	4304.	57.78	2.9549E+02
PA-233	4820.	312.17	5.3872E-01
PA-234M	19.	1001.03	5.8475E-02
TH-234	4363.	63.29	9.0708E+00
U-235	6806.	185.71	2.9252E-01
NP-237	4681.	86.48	1.5764E+00
U-237	4355.	59.54	1.5043E+00
NP-238	24.	984.45	1.3663E-01
NP-239	4903.	106.12	6.6152E-01
PU-239	5460.	129.30	2.1574E+03
AM-241	4355.	59.54	1.4429E+00
AM-243	4520.	74.67	4.3077E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-DEC-1995 09:36:16.93                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4305
Sample ID:               S95T3649-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2363.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:21.74 sec
Dead Time:               0.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-DEC-1995 08:45:17.44
Decayed to:              18-DEC-1995 08:45:17.44
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by:

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.40*	160365	1.52	1322.83	1314	18	0.5		CS-137	223.
0	1274.59	18	1.55	2549.29	2546	7	57.9		NA-22	3.779E-02
0	1320.41	18	4.26	2640.97	2632	20	76.6			
0	1332.12	14	1.36	2664.39	2661	9	63.7			

Summary of Nuclide Activity
Sample ID : S95T3649-DUP

Acquisition date : 18-DEC-1995 08:45:17

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	4	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	3	75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~3.779E-02~~	~~3.779E-02~~	~~2.187E-02~~	~~57.87~~	~~K~~
CS-137	30.00Y	1.000	2.225E+02	2.225E+02	0.011E+02	0.51	
		Total Activity :	2.226E+02	2.226E+02			
		Grand Total Activity :	2.226E+02	2.226E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T3649-DUP
Acquisition date : 18-DEC-1995 08:45:17

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4966.	477.59	2.8585E+00
NA-24	2.	1368.55	1.4901E-02
K-40	101.	1460.75	1.0277E+00
SC-46	21.	1120.55	3.9823E-02
CR-51	4243.	320.08	1.9712E+00
MN-54	37.	834.83	4.0905E-02
CO-56	37.	846.76	4.1259E-02
CO-57	4819.	122.06	1.5522E-01
CO-58	31.	810.78	3.6336E-02
FE-59	18.	1099.25	6.4769E-02
CO-60	17.	1332.50	4.2161E-02
ZN-65	21.	1115.55	7.8468E-02
SE-75	4817.	264.66	3.1706E-01
KR-85	2680.	514.00	5.3335E+01
SR-85	2679.	514.01	2.4113E-01
Y-88	6.	1836.06	3.2125E-02
Y-90	9.	1760.70	1.3536E-01
Y-91	12.	1204.67	1.0976E+01
NB-94	37.	871.09	4.2061E-02
NB-95	34.	765.78	3.6313E-02
ZR-95	35.	756.73	6.6720E-02
RU-103	3245.	497.08	2.7215E-01
RURH-106	1065.	621.93	3.4382E+00
AG-108m	56.	722.94	4.8999E-02
CD-109	4201.	88.03	4.9761E+00
AG-110M	6360.	657.76	4.6129E-01
SN-113	4433.	391.69	3.6641E-01
TE-123m	4794.	159.00	1.5491E-01
SB-124	1067.	602.73	1.7016E-01
SB-125	5255.	427.89	9.3617E-01
TE-125m	4357.	109.27	4.8924E+01
I-129	4024.	39.60	0.0000E+00
I-131	4345.	364.48	2.7171E-01
XE-131m	4822.	163.93	6.7437E+00
BA-133	4257.	356.02	3.4574E-01
CS-134	1050.	604.70	1.6954E-01
CS-136	39.	818.51	4.1242E-02
CS-138	8.	1435.86	6.6719E-02
CE-139	4835.	165.85	1.6637E-01
BA-140	1899.	537.31	8.2975E-01
LA-140	5.	1596.21	2.8693E-02
CE-141	4697.	145.44	2.6221E-01
CE-144	4892.	133.51	1.1697E+00
CEPR-144	4891.	133.51	2.3372E+00
EU-152	6.	1408.01	1.2407E-01
EU-154	26.	1274.51	1.4534E-01
EU-155	4192.	86.54	5.6321E-01
HF-181	4129.	482.18	3.3797E-01
TA-182	3848.	67.75	7.4730E-01
HG-203	4475.	279.20	2.2737E-01
BI-207	1228.	569.70	1.7438E-01

Sample ID : S95T3649-DUP Acquisition date : 18-DEC-1995 08:45:17

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	4467.	277.36	2.9190E+00
PB-210	3898.	46.50	0.0000E+00
BI-212	54.	727.18	6.5984E-01
PB-212	5325.	238.63	4.1640E-01
BI-214	1159.	609.31	3.9048E-01
PB-214	4211.	351.92	1.0576E+00
RA-224	5192.	240.99	4.5634E+00
RA-226	5999.	186.10	4.5183E+00
AC-228	36.	911.21	1.6374E-01
TH-228	4144.	84.37	1.5177E+01
TH-229	4212.	88.47	7.2228E-01
U-232	3937.	57.78	2.8262E+02
PA-233	4181.	312.17	5.0177E-01
PA-234M	14.	1001.03	4.9252E-02
TH-234	3919.	63.29	8.5972E+00
U-235	5925.	185.71	2.7294E-01
NP-237	4189.	86.48	1.4912E+00
U-237	3999.	59.54	1.4415E+00
NP-238	18.	984.45	1.2067E-01
NP-239	4252.	106.12	6.1603E-01
PU-239	4880.	129.30	2.0397E+03
AM-241	3999.	59.54	1.3827E+00
AM-243	4016.	74.67	4.0607E-01

WHC-SD-WM-DP-164, REV. 1

LABCORE Completed Worklist Report for Worklist# 4573

Analyst: knt **Instrument:** GEA02 **Book#** 144B52

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: BY104 GEA FOR S95T003531, SS=5ML.RTS

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@GEA-01	C060-02	SOLID	0.021	2.08e-02	99.050	% Recovery
1	STD		0		@GEA-01	C060-02E	SOLID	1	1.54	1.540	% Ct. Error
1	STD		0		@GEA-01	CS13702	SOLID	0.0253	2.54e-02	100.400	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1	1.65	1.650	% Ct. Error
2	BLNK-PREP		0		@GEA-01	C060-02	SOLID	1	<5.96e-3		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1	<1.34e-2		uCi/g
3	SAMPLE	S95T003531	0	F	@GEA-01	C060-02	SOLID	N/A <	1.272e-02	6.000e-003	uCi/g
3	SAMPLE	S95T003531	0	F	@GEA-01	C060-02E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S95T003531	0	F	@GEA-01	CS13702	SOLID	N/A	1.670e+01	1.300e-002	uCi/g
3	SAMPLE	S95T003531	0	F	@GEA-01	CS13702E	SOLID	N/A	.89	0.000	% Ct. Error
4	DUP	S95T003531	0	F	@GEA-01	C060-02	SOLID	<1.27e-2	<9.78e-3		RPD
4	DUP	S95T003531	0	F	@GEA-01	C060-02E	SOLID	1	n/a		% Ct. Error
4	DUP	S95T003531	0	F	@GEA-01	CS13702	SOLID	1.67e+01	1.45e+01	14.100	RPD
4	DUP	S95T003531	0	F	@GEA-01	CS13702E	SOLID	1.00	.91	0.910	% Ct. Error

Comments Section:

Comments for sample# S95T003531 **and test** @GEA-01 .
Contaminated blank; sample 1000 x higher. No re-run. -PPB
Contaminated blank; sample 1000 x higher. No re-run. -PPB

Final page for worklist# 4573

Analyst Signature **Date** **Analyst Signature** **Date**

D Bachelor 1/4/96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 4573

Analyst: KTKNT **Instrument:** GEA00 2 **Book#** 144B52

Method: LA-548-121 Rev/Mod D-1 WHC-SD-WM-DP-164, REV. 1

Worklist Comment: BY104 GEA FOR S95T003531, SS=5ML.RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S95T003531	0	F	@GEA-01	SOLID	95000180	BY104 ROTARY
		Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S95T003531	0	F	@GEA-01	SOLID		

Final page for worklist # 4573

Kim Thomas 12-29-95
Analyst Signature **Date**

1/3/96
Analyst Signature **Date**
SE Hogan 1/3/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 16:42:42.48                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4573
Sample ID:               WL4573-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2431.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:07.47 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 15:51:53.90
Decayed to:              30-DEC-1995 15:51:53.90
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: Raymond

Verified by: Bracheler 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.52*	18324	1.52	1323.05	1315	16	1.7		CS-137	25.4
0	1172.99	10530	1.94	2346.04	2336	21	2.2		CO-60	20.7
0	1332.26	9591	1.93	2664.68	2655	21	2.1		CO-60	20.9

Summary of Nuclide Activity
Sample ID : WL4573-STD

Acquisition date : 30-DEC-1995 15:51:53

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.078E+01	2.078E+01	0.032E+01	1.54	
CS-137	30.00Y	1.000	2.543E+01	2.543E+01	0.042E+01	1.65	
		Total Activity :	4.621E+01	4.621E+01			
		Grand Total Activity :	4.621E+01	4.621E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL4573-STD
Acquisition date : 30-DEC-1995 15:51:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	972.	477.59	1.2648E+00
NA-22	84.	1274.53	8.9211E-02
NA-24	20.	1368.55	4.6537E-02
K-40	135.	1460.75	1.1869E+00
SC-46	475.	1120.55	1.9074E-01
CR-51	994.	320.08	9.5397E-01
MN-54	526.	834.83	1.5359E-01
CO-56	556.	846.76	1.5997E-01
CO-57	1122.	122.06	7.4894E-02
CO-58	513.	810.78	1.4885E-01
FE-59	521.	1099.25	3.4728E-01
ZN-65	464.	1115.55	3.7003E-01
SE-75	1088.	264.66	1.5066E-01
KR-85	706.	514.00	2.7371E+01
SR-85	705.	514.01	1.2375E-01
Y-88	15.	1836.06	5.0749E-02
Y-90	18.	1760.70	1.8997E-01
Y-91	148.	1204.67	3.7899E+01
NB-94	580.	871.09	1.6722E-01
NB-95	460.	765.78	1.3375E-01
ZR-95	472.	756.73	2.4567E-01
RU-103	736.	497.08	1.2962E-01
RURH-106	507.	621.93	2.3726E+00
AG-108m	444.	722.94	1.3749E-01
CD-109	936.	88.03	2.3488E+00
AG-110M	973.	657.76	1.8043E-01
SN-113	962.	391.69	1.7073E-01
TE-123m	1175.	159.00	7.6678E-02
SB-124	510.	602.73	1.1764E-01
SB-125	988.	427.89	4.0592E-01
TE-125m	1105.	109.27	2.4640E+01
I-129	963.	39.60	0.0000E+00
I-131	893.	364.48	1.2318E-01
XE-131m	1188.	163.93	3.3478E+00
BA-133	974.	356.02	1.6540E-01
CS-134	519.	604.70	1.1924E-01
CS-136	600.	818.51	1.6195E-01
CS-138	28.	1435.86	1.2184E-01
CE-139	1130.	165.85	8.0436E-02
BA-140	572.	537.31	4.5543E-01
LA-140	10.	1596.21	3.8431E-02
CE-141	1225.	145.44	1.3392E-01
CE-144	1116.	133.51	5.5864E-01
CEPR-144	1116.	133.51	1.1163E+00
EU-152	21.	1408.01	2.3108E-01
EU-154	84.	1274.51	2.5924E-01
EU-155	954.	86.54	2.6862E-01
HF-181	795.	482.18	1.4826E-01
TA-182	911.	67.75	3.6356E-01
HG-203	1033.	279.20	1.0923E-01
BI-207	507.	569.70	1.1207E-01

Sample ID : WL4573-STD Acquisition date : 30-DEC-1995 15:51:53

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1077.	277.36	1.4330E+00
PB-210	920.	46.50	0.0000E+00
BI-212	467.	727.18	1.9363E+00
PB-212	1248.	238.63	2.0157E-01
BI-214	560.	609.31	2.7139E-01
PB-214	965.	351.92	5.0504E-01
RA-224	1232.	240.99	2.2226E+00
RA-226	1262.	186.10	2.0719E+00
AC-228	659.	911.21	6.9628E-01
TH-228	964.	84.37	7.3184E+00
TH-229	954.	88.47	3.4382E-01
U-232	928.	57.78	1.3719E+02
PA-233	1022.	312.17	2.4813E-01
PA-234M	542.	1001.03	3.1098E-01
TH-234	942.	63.29	4.2156E+00
U-235	1258.	185.71	1.2577E-01
NP-237	955.	86.48	7.1192E-01
U-237	937.	59.54	6.9762E-01
NP-238	558.	984.45	6.6301E-01
NP-239	1058.	106.12	3.0723E-01
PU-239	1134.	129.30	9.8313E+02
AM-241	937.	59.54	6.6916E-01
AM-243	924.	74.67	1.9472E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 17:42:44.79                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4573
Sample ID:               WL4573-BLK
Sample Size:             5.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2432.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.47 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 16:52:05.90
Decayed to:              30-DEC-1995 16:52:05.90
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: 12-30-95

Verified by: 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	351.75*	39	0.86	703.70	699	10	75.7			
0	609.60*	16	1.04	1219.24	1215	10	107.9			
0	661.56*	43	1.32	1323.15	1318	10	71.3		CS-137	1.184E-02

Summary of Nuclide Activity
Sample ID : WL4573-BLK

Acquisition date : 30-DEC-1995 16:52:05

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~1.184E-02~~	~~1.184E-02~~	~~0.844E-02~~	~~71.29~~	AKG
			---	---			
Total Activity :			1.184E-02	1.184E-02			
Grand Total Activity :			1.184E-02	1.184E-02			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : WL4573-BLK Acquisition date : 30-DEC-1995 16:52:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	37.	477.59	4.9263E-02
NA-22	9.	1274.53	5.8143E-03
NA-24	14.	1368.55	7.8656E-03
K-40	119.	1460.75	2.2272E-01
SC-46	24.	1120.55	8.5439E-03
CR-51	61.	320.08	4.7193E-02
MN-54	14.	834.83	5.0770E-03
CO-56	14.	846.76	5.0719E-03
CO-57	68.	122.06	3.6880E-03
CO-58	16.	810.78	5.2457E-03
FE-59	18.	1099.25	1.2993E-02
CO-60	7.	1332.50	5.2484E-03
ZN-65	13.	1115.55	1.2407E-02
SE-75	56.	264.66	6.8442E-03
KR-85	50.	514.00	1.4589E+00
SR-85	50.	514.01	6.5814E-03
Y-88	2.	1836.06	3.7259E-03
Y-90	4.	1760.70	1.8877E-02
Y-91	14.	1204.67	2.3279E+00
NB-94	19.	871.09	6.0689E-03
NB-95	13.	765.78	4.4527E-03
ZR-95	10.	756.73	7.0089E-03
RU-103	32.	497.08	5.4010E-03
RURH-106	21.	621.93	9.5722E-02
AG-108m	20.	722.94	5.8387E-03
CD-109	68.	88.03	1.2650E-01
AG-110M	24.	657.76	5.6083E-03
SN-113	39.	391.69	6.9102E-03
TE-123m	76.	159.00	3.8929E-03
SB-124	21.	602.73	4.8058E-03
SB-125	44.	427.89	1.7108E-02
TE-125m	56.	109.27	1.1121E+00
I-129	67.	39.60	0.0000E+00
I-131	39.	364.48	5.1621E-03
XE-131m	80.	163.93	1.7350E-01
BA-133	35.	356.02	6.2981E-03
CS-134	30.	604.70	5.7458E-03
CS-136	18.	818.51	5.6609E-03
CS-138	9.	1435.86	1.3789E-02
CE-139	89.	165.85	4.5229E-03
BA-140	27.	537.31	1.9879E-02
LA-140	4.	1596.21	5.1908E-03
CE-141	79.	145.44	6.7981E-03
CE-144	76.	133.51	2.9142E-02
CEPR-144	76.	133.51	5.8244E-02
EU-152	4.	1408.01	2.0261E-02
EU-154	9.	1274.51	1.6816E-02
EU-155	68.	86.54	1.4342E-02
HF-181	31.	482.18	5.8939E-03
TA-182	79.	67.75	2.1430E-02
HG-203	62.	279.20	5.3433E-03

Sample ID : WL4573-BLK Acquisition date : 30-DEC-1995 16:52:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	23.	569.70	4.7520E-03
TL-208	54.	277.36	6.4133E-02
PB-210	47.	46.50	0.0000E+00
BI-212	20.	727.18	7.9195E-02
PB-212	90.	238.63	1.0813E-02
BI-214	46.	609.31	1.5539E-02
PB-214	88.	351.92	3.0499E-02
RA-224	88.	240.99	1.1896E-01
RA-226	92.	186.10	1.1193E-01
AC-228	31.	911.21	3.0314E-02
TH-228	80.	84.37	4.2149E-01
TH-229	70.	88.47	1.8584E-02
U-232	57.	57.78	6.7795E+00
PA-233	66.	312.17	1.2620E-02
PA-234M	19.	1001.03	1.1519E-02
TH-234	75.	63.29	2.3778E-01
U-235	99.	185.71	7.0441E-03
NP-237	68.	86.48	3.8131E-02
U-237	58.	59.54	3.4837E-02
NP-238	10.	984.45	1.7980E-02
NP-239	83.	106.12	1.7244E-02
PU-239	85.	129.30	5.3853E+01
AM-241	58.	59.54	3.3416E-02
AM-243	63.	74.67	1.0133E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 19:09:23.77                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4573
Sample ID:               S95T003531-SAM
Sample Size:             5.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2433.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:07.48 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 18:18:35.51
Decayed to:              30-DEC-1995 18:18:35.51
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: [signature] 12-30-95

Verified by: [signature] 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.51*	52967	1.53	1323.05	1315	17	0.9		CS-137	14.7
0	1173.20	23	1.17	2346.45	2339	14	63.7			

Sample ID : S95T003531-SAM Acquisition date : 30-DEC-1995 18:18:35

Total number of lines in spectrum	2	WHC-SD-WM-DP-164, REV. 1
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.470E+01	1.470E+01	0.013E+01	0.89	
		Total Activity :	1.470E+01	1.470E+01			
		Grand Total Activity :	1.470E+01	1.470E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T003531-SAM
Acquisition date : 30-DEC-1995 18:18:35

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1636.	477.59	3.2817E-01
NA-22	18.	1274.53	8.3536E-03
NA-24	5.	1368.55	4.7116E-03
K-40	109.	1460.75	2.1317E-01
SC-46	19.	1120.55	7.6120E-03
CR-51	1477.	320.08	2.3257E-01
MN-54	18.	834.83	5.6343E-03
CO-56	16.	846.76	5.4264E-03
CO-57	1655.	122.06	1.8194E-02
CO-58	20.	810.78	5.8367E-03
FE-59	16.	1099.25	1.2354E-02
CO-60	31.	1332.50	1.1217E-02
ZN-65	12.	1115.55	1.1939E-02
SE-75	1597.	264.66	3.6512E-02
KR-85	855.	514.00	6.0253E+00
SR-85	854.	514.01	2.7236E-02
Y-88	2.	1836.06	3.7259E-03
Y-90	3.	1760.70	1.4760E-02
Y-91	14.	1204.67	2.3537E+00
NB-94	17.	871.09	5.6442E-03
NB-95	34.	765.78	7.2736E-03
ZR-95	19.	756.73	9.9622E-03
RU-103	1041.	497.08	3.0826E-02
RURH-106	371.	621.93	4.0566E-01
AG-108m	24.	722.94	6.4290E-03
CD-109	1477.	88.03	5.9005E-01
AG-110M	1703.	657.76	4.7741E-02
SN-113	1514.	391.69	4.2823E-02
TE-123m	1672.	159.00	1.8297E-02
SB-124	368.	602.73	1.9994E-02
SB-125	1803.	427.89	1.0966E-01
TE-125m	1577.	109.27	5.8868E+00
I-129	1407.	39.60	0.0000E+00
I-131	1422.	364.48	3.1089E-02
XE-131m	1620.	163.93	7.8186E-01
BA-133	1398.	356.02	3.9624E-02
CS-134	373.	604.70	2.0203E-02
CS-136	16.	818.51	5.2892E-03
CS-138	1.	1435.86	5.2431E-03
CE-139	1644.	165.85	1.9404E-02
BA-140	638.	537.31	9.6229E-02
LA-140	3.	1596.21	4.2735E-03
CE-141	1704.	145.44	3.1587E-02
CE-144	1668.	133.51	1.3660E-01
CEPR-144	1668.	133.51	2.7295E-01
EU-152	7.	1408.01	2.7044E-02
EU-154	18.	1274.51	2.4243E-02
EU-155	1466.	86.54	6.6615E-02
HF-181	1297.	482.18	3.7885E-02
TA-182	1382.	67.75	8.9551E-02
HG-203	1568.	279.20	2.6917E-02

Sample ID : S95T003531-SAM Acquisition date : 30-DEC-1995 18:18:35

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	454.	569.70	2.1197E-02
TL-208	1532.	277.36	3.4191E-01
PB-210	1335.	46.50	0.0000E+00
BI-212	26.	727.18	9.1806E-02
PB-212	1849.	238.63	4.9067E-02
BI-214	397.	609.31	4.5681E-02
PB-214	1493.	351.92	1.2564E-01
RA-224	1786.	240.99	5.3522E-01
RA-226	2074.	186.10	5.3131E-01
AC-228	22.	911.21	2.5694E-02
TH-228	1468.	84.37	1.8066E+00
TH-229	1472.	88.47	8.5400E-02
U-232	1367.	57.78	3.3301E+01
PA-233	1457.	312.17	5.9246E-02
PA-234M	18.	1001.03	1.1232E-02
TH-234	1326.	63.29	1.0000E+00
U-235	2068.	185.71	3.2249E-02
NP-237	1467.	86.48	1.7648E-01
U-237	1351.	59.54	1.6754E-01
NP-238	19.	984.45	2.4499E-02
NP-239	1560.	106.12	7.4623E-02
PU-239	1630.	129.30	2.3573E+02
AM-241	1351.	59.54	1.6071E-01
AM-243	1497.	74.67	4.9579E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 20:16:20.23                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-164, REV. 1

```
Worklist #:              4573
Sample ID:               S95T003531-DUP
Sample Size:             5.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: 12-30-95

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2434.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:07.28 sec
Dead Time:               0.2%
```

Verified by: 1/2/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 19:25:15.38
Decayed to:              30-DEC-1995 19:25:15.38
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.52*	51472	1.54	1323.06	1315	17	0.9		CS-137	14.3
0	1172.75	26	1.00	2345.55	2339	13	57.2			
0	1764.50*	7	1.62	3529.63	3524	12	125.7			

Sample ID : S95T003531-DUP
Acquisition date : 30-DEC-1995 19:25:15

Total number of lines in spectrum 3 WHC-SD-WM-DP-164, REV. 1
Number of unidentified lines 0
Number of lines tentatively identified by NID 3 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.429E+01	1.429E+01	0.013E+01	0.91	
		Total Activity :	1.429E+01	1.429E+01			
		Grand Total Activity :	1.429E+01	1.429E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T003531-DUP Acquisition date : 30-DEC-1995 19:25:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1577.	477.59	3.2213E-01
NA-22	9.	1274.53	5.9410E-03
NA-24	9.	1368.55	6.3100E-03
K-40	107.	1460.75	2.1128E-01
SC-46	34.	1120.55	1.0155E-02
CR-51	1372.	320.08	2.2420E-01
MN-54	13.	834.83	4.8237E-03
CO-56	17.	846.76	5.5988E-03
CO-57	1643.	122.06	1.8128E-02
CO-58	26.	810.78	6.6614E-03
FE-59	19.	1099.25	1.3180E-02
CO-60	23.	1332.50	9.6471E-03
ZN-65	13.	1115.55	1.2321E-02
SE-75	1576.	264.66	3.6272E-02
KR-85	823.	514.00	5.9134E+00
SR-85	823.	514.01	2.6736E-02
Y-88	3.	1836.06	4.5633E-03
Y-90	4.	1760.70	1.8877E-02
Y-91	17.	1204.67	2.5549E+00
NB-94	24.	871.09	6.8231E-03
NB-95	22.	765.78	5.7874E-03
ZR-95	21.	756.73	1.0265E-02
RU-103	1004.	497.08	3.0277E-02
RURH-106	363.	621.93	4.0136E-01
AG-108m	22.	722.94	6.0547E-03
CD-109	1379.	88.03	5.7021E-01
AG-110M	1580.	657.76	4.5989E-02
SN-113	1510.	391.69	4.2764E-02
TE-123m	1610.	159.00	1.7953E-02
SB-124	349.	602.73	1.9464E-02
SB-125	1740.	427.89	1.0775E-01
TE-125m	1485.	109.27	5.7130E+00
I-129	1293.	39.60	0.0000E+00
I-131	1419.	364.48	3.1056E-02
XE-131m	1599.	163.93	7.7674E-01
BA-133	1374.	356.02	3.9292E-02
CS-134	364.	604.70	1.9974E-02
CS-136	16.	818.51	5.2687E-03
CS-138	3.	1435.86	8.3561E-03
CE-139	1645.	165.85	1.9409E-02
BA-140	648.	537.31	9.6970E-02
LA-140	3.	1596.21	4.2735E-03
CE-141	1666.	145.44	3.1234E-02
CE-144	1664.	133.51	1.3645E-01
CEPR-144	1664.	133.51	2.7267E-01
EU-152	17.	1408.01	4.1201E-02
EU-154	9.	1274.51	1.7260E-02
EU-155	1388.	86.54	6.4803E-02
HF-181	1342.	482.18	3.8538E-02
TA-182	1347.	67.75	8.8428E-02
HG-203	1464.	279.20	2.6007E-02

Sample ID : S95T003531-DUP Acquisition date : 30-DEC-1995 19:25:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	405.	569.70	2.0024E-02
TL-208	1483.	277.36	3.3634E-01
PB-210	1385.	46.50	0.0000E+00
BI-212	32.	727.18	1.0166E-01
PB-212	1764.	238.63	4.7927E-02
BI-214	401.	609.31	4.5925E-02
PB-214	1396.	351.92	1.2151E-01
RA-224	1743.	240.99	5.2887E-01
RA-226	2066.	186.10	5.3034E-01
AC-228	31.	911.21	3.0212E-02
TH-228	1386.	84.37	1.7552E+00
TH-229	1382.	88.47	8.2735E-02
U-232	1271.	57.78	3.2111E+01
PA-233	1421.	312.17	5.8502E-02
PA-234M	15.	1001.03	1.0511E-02
TH-234	1351.	63.29	1.0095E+00
U-235	2041.	185.71	3.2035E-02
NP-237	1392.	86.48	1.7193E-01
U-237	1362.	59.54	1.6824E-01
NP-238	17.	984.45	2.3143E-02
NP-239	1503.	106.12	7.3242E-02
PU-239	1589.	129.30	2.3280E+02
AM-241	1362.	59.54	1.6138E-01
AM-243	1401.	74.67	4.7965E-02

LABCORE Completed Worklist Report for Worklist# 4574

Analyst: knt **Instrument:** GEA01 **Book#** 144852

Method: LA-548-121 Rev/Mod D-1 WHC-SD-WM-DP-164, REV. 1

Worklist Comment: BY104 GEA S95T003650,51,52,53. SS=2ML. RTS

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01	C060-02	SOLID	0.021		2.21e-02	105.240	% Recovery
1	STD		0		@GEA-01	C060-02E	SOLID	1		2.6	2.600	% Ct. Error
1	STD		0		@GEA-01	CS13702	SOLID	0.0253		2.67e-02	105.530	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1		2.89	2.890	% Ct. Error
2	BLNK-PREP		0		@GEA-01	C060-02	SOLID	1		<3.20e-2		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1		<4.67e-2		uCi/g
3	SAMPLE	S95T003650	0	Z	@GEA-01	C060-02	SOLID	N/A	<	1.739e-02	3.200e-002	uCi/g
3	SAMPLE	S95T003650	0	Z	@GEA-01	C060-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T003650	0	Z	@GEA-01	CS13702	SOLID	N/A		1.497e+02	4.700e-002	uCi/g
3	SAMPLE	S95T003650	0	Z	@GEA-01	CS13702E	SOLID	N/A		.31	0.000	% Ct. Error
4	DUP	S95T003650	0	Z	@GEA-01	C060-02	SOLID	<1.74e-2		<1.57e-2		RPD
4	DUP	S95T003650	0	Z	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T003650	0	Z	@GEA-01	CS13702	SOLID	1.50e+02		1.36e+02	9.790	RPD
4	DUP	S95T003650	0	Z	@GEA-01	CS13702E	SOLID	1.00		.33	0.330	% Ct. Error
5	SAMPLE	S95T003651	0	Z	@GEA-01	C060-02	SOLID	N/A	<	1.417e-02	3.200e-002	uCi/g
5	SAMPLE	S95T003651	0	Z	@GEA-01	C060-02E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S95T003651	0	Z	@GEA-01	CS13702	SOLID	N/A		1.205e+02	4.700e-002	uCi/g
5	SAMPLE	S95T003651	0	Z	@GEA-01	CS13702E	SOLID	N/A		.34	0.000	% Ct. Error
6	DUP	S95T003651	0	Z	@GEA-01	C060-02	SOLID	<1.42e-2		<1.37e-2		RPD
6	DUP	S95T003651	0	Z	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
6	DUP	S95T003651	0	Z	@GEA-01	CS13702	SOLID	1.20e+02		1.32e+02	9.520	RPD
6	DUP	S95T003651	0	Z	@GEA-01	CS13702E	SOLID	1.00		.32	0.320	% Ct. Error
7	SAMPLE	S95T003652	0	Z	@GEA-01	C060-02	SOLID	N/A	<	1.401e-02	3.200e-002	uCi/g
7	SAMPLE	S95T003652	0	Z	@GEA-01	C060-02E	SOLID	N/A		n/a	0.000	% Ct. Error
7	SAMPLE	S95T003652	0	Z	@GEA-01	CS13702	SOLID	N/A		1.340e+02	4.700e-002	uCi/g
7	SAMPLE	S95T003652	0	Z	@GEA-01	CS13702E	SOLID	N/A		.33	0.000	% Ct. Error
8	DUP	S95T003652	0	Z	@GEA-01	C060-02	SOLID	<1.40e-2		<1.60e-2		RPD
8	DUP	S95T003652	0	Z	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
8	DUP	S95T003652	0	Z	@GEA-01	CS13702	SOLID	1.34e+02		1.37e+02	2.210	RPD
8	DUP	S95T003652	0	Z	@GEA-01	CS13702E	SOLID	1.00		.32	0.320	% Ct. Error
9	SAMPLE	S95T003653	0	Z	@GEA-01	C060-02	SOLID	N/A	<	1.631e-02	3.200e-002	uCi/g
9	SAMPLE	S95T003653	0	Z	@GEA-01	C060-02E	SOLID	N/A		n/a	0.000	% Ct. Error
9	SAMPLE	S95T003653	0	Z	@GEA-01	CS13702	SOLID	N/A		1.326e+02	4.700e-002	uCi/g
9	SAMPLE	S95T003653	0	Z	@GEA-01	CS13702E	SOLID	N/A		.33	0.000	% Ct. Error
10	DUP	S95T003653	0	Z	@GEA-01	C060-02	SOLID	<1.63e-2		<1.44e-2		RPD
10	DUP	S95T003653	0	Z	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
10	DUP	S95T003653	0	Z	@GEA-01	CS13702	SOLID	1.33e+02		1.24e+02	7.000	RPD
10	DUP	S95T003653	0	Z	@GEA-01	CS13702E	SOLID	1.00		.34	0.340	% Ct. Error

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Worklist Report for Worklist# 4574

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit

Final page for worklist# 4574

Analyst Signature Date

Analyst Signature Date

R Machelor 1/4/96
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 4574

Analyst: KT KNT **Instrument:** GEA00 #1 **Book#** 144B52

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: BY104 GEA S95T003650,51,52,53. SS=2ML. RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S95T003650	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S95T003650	0	Z	@GEA-01	SOLID		
5	SAMPLE	S95T003651	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S95T003651	0	Z	@GEA-01	SOLID		
7	SAMPLE	S95T003652	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
8	DUP	S95T003652	0	Z	@GEA-01	SOLID		
9	SAMPLE	S95T003653	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
10	DUP	S95T003653	0	Z	@GEA-01	SOLID		

Final page for worklist # 4574

Kim Thomas 12-30-95
Analyst Signature **Date**

[illegible] 1/3/96
Analyst Signature **Date**
SE Hogan 1/3/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 16:44:39.57                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-164, REV. 1

```
Worklist #:              4574
Sample ID:               WL4574-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1110.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.03 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 15:53:53.56
Decayed to:              30-DEC-1995 15:53:53.56
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:   13-DEC-1995 10:26:32.17
*****************************************************************************
```

Removed by: Raymond

Verified by: B Machelor 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.80	906	1.04	63.96	59	11	16.0			
0	36.49	307	1.19	73.33	69	10	36.0			
0	352.12*	133	1.77	704.33	700	10	71.6			
0	661.90*	6091	1.48	1323.76	1317	13	2.9		CS-137	26.7
0	1173.50	3710	1.70	2346.94	2340	16	3.7		CO-60	22.2
0	1332.81	3343	1.87	2665.60	2656	19	3.7		CO-60	22.0
0	1593.52	21	3.36	3187.17	3183	10	59.1			

Summary of Nuclide Activity
Sample ID : WL4574-STD

Acquisition date : 30-DEC-1995 15:53:53

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	7	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	4	57.14%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.207E+01	2.207E+01	0.057E+01	2.60	
CS-137	30.00Y	1.000	2.666E+01	2.666E+01	0.077E+01	2.89	
		Total Activity :	4.873E+01	4.873E+01			
		Grand Total Activity :	4.873E+01	4.873E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL4574-STD Acquisition date : 30-DEC-1995 15:53:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	420.	477.59	2.6136E+00
NA-22	62.	1274.53	2.3335E-01
NA-24	21.	1368.55	1.4715E-01
K-40	594.	1460.75	7.4673E+00
SC-46	223.	1120.55	3.9993E-01
CR-51	450.	320.08	2.0195E+00
MN-54	241.	834.83	3.2728E-01
CO-56	212.	846.76	3.1056E-01
CO-57	724.	122.06	1.7176E-01
CO-58	220.	810.78	3.0663E-01
FE-59	217.	1099.25	6.8728E-01
ZN-65	193.	1115.55	7.3170E-01
SE-75	540.	264.66	3.3162E-01
KR-85	361.	514.00	6.1396E+01
SR-85	361.	514.01	2.7754E-01
Y-88	13.	1836.06	1.3652E-01
Y-90	15.	1760.70	5.1065E-01
Y-91	76.	1204.67	8.2543E+01
NB-94	243.	871.09	3.4047E-01
NB-95	215.	765.78	2.8825E-01
ZR-95	217.	756.73	5.2498E-01
RU-103	328.	497.08	2.7158E-01
RURH-106	241.	621.93	5.1525E+00
AG-108m	187.	722.94	2.8166E-01
CD-109	670.	88.03	3.6338E+00
AG-110M	331.	657.76	3.3173E-01
SN-113	468.	391.69	3.7924E-01
TE-123m	682.	159.00	1.9066E-01
SB-124	255.	602.73	2.6165E-01
SB-125	424.	427.89	8.4382E-01
TE-125m	685.	109.27	4.9166E+01
I-129	370.	39.60	1.5172E+00
I-131	459.	364.48	2.7995E-01
XE-131m	744.	163.93	8.6704E+00
BA-133	458.	356.02	3.5873E-01
CS-134	262.	604.70	2.6641E-01
CS-136	234.	818.51	3.1865E-01
CS-138	17.	1435.86	2.8687E-01
CE-139	671.	165.85	2.0311E-01
BA-140	286.	537.31	1.0104E+00
LA-140	19.	1596.21	1.6002E-01
CE-141	730.	145.44	3.2962E-01
CE-144	715.	133.51	1.3677E+00
CEPR-144	715.	133.51	2.7330E+00
EU-152	32.	1408.01	8.6017E-01
EU-154	62.	1274.51	6.7903E-01
EU-155	715.	86.54	4.1215E-01
HF-181	395.	482.18	3.2841E-01
TA-182	522.	67.75	2.7864E-01
HG-203	525.	279.20	2.4379E-01
BI-207	259.	569.70	2.5129E-01

Sample ID : WL4574-STD Acquisition date : 30-DEC-1995 15:53:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	542.	277.36	3.1845E+00
PB-210	438.	46.50	2.8355E+00
BI-212	230.	727.18	4.2840E+00
PB-212	644.	238.63	4.5257E-01
BI-214	403.	609.31	7.2521E-01
PB-214	666.	351.92	1.3269E+00
RA-224	600.	240.99	4.8443E+00
RA-226	826.	186.10	5.4739E+00
AC-228	333.	911.21	1.5541E+00
TH-228	717.	84.37	1.0663E+01
TH-229	653.	88.47	5.2464E-01
U-232	480.	57.78	5.6229E+01
PA-233	504.	312.17	5.4734E-01
PA-234M	191.	1001.03	5.7264E-01
TH-234	516.	63.29	2.5519E+00
U-235	821.	185.71	3.3162E-01
NP-237	717.	86.48	1.0915E+00
U-237	494.	59.54	3.2938E-01
NP-238	231.	984.45	1.3281E+00
NP-239	611.	106.12	5.7029E-01
PU-239	756.	129.30	2.4027E+03
AM-241	494.	59.54	3.1597E-01
AM-243	771.	74.67	2.3180E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 17:41:25.54                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-164, REV. 1

```
Worklist #:              4574
Sample ID:               WL4574-BLK
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1111.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:04.47 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 16:50:42.35
Decayed to:              30-DEC-1995 16:50:42.35
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:   13-DEC-1995 10:26:32.17
*****************************************************************************
```

Removed by: 12-30-95

Verified by: 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	352.19*	79	1.42	704.47	701	9	73.3			
0	609.60*	69	1.32	1219.16	1211	16	88.7			
0	1729.80*	13	1.19	3459.84	3454	14	77.9			

Sample ID : WL4574-BLK Acquisition date : 30-DEC-1995 16:50:42

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

**** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL4574-BLK
Acquisition date : 30-DEC-1995 16:50:42

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	130.	477.59	7.2704E-01
NA-22	46.	1274.53	1.0048E-01
NA-24	18.	1368.55	6.7684E-02
K-40	592.	1460.75	3.7272E+00
SC-46	92.	1120.55	1.2870E-01
CR-51	201.	320.08	6.7522E-01
MN-54	74.	834.83	9.0817E-02
CO-56	46.	846.76	7.2444E-02
CO-57	482.	122.06	7.0105E-02
CO-58	53.	810.78	7.5451E-02
FE-59	48.	1099.25	1.6222E-01
CO-60	21.	1332.50	7.0248E-02
ZN-65	44.	1115.55	1.7417E-01
SE-75	255.	264.66	1.1383E-01
KR-85	109.	514.00	1.6866E+01
SR-85	109.	514.01	7.6102E-02
Y-88	11.	1836.06	6.2580E-02
Y-90	14.	1760.70	2.4473E-01
Y-91	43.	1204.67	3.1098E+01
NB-94	62.	871.09	8.5685E-02
NB-95	55.	765.78	7.2968E-02
ZR-95	53.	756.73	1.2947E-01
RU-103	102.	497.08	7.5670E-02
RURH-106	61.	621.93	1.2926E+00
AG-108m	67.	722.94	8.4314E-02
CD-109	437.	88.03	1.4676E+00
AG-110M	62.	657.76	7.1873E-02
SN-113	133.	391.69	1.0116E-01
TE-123m	455.	159.00	7.7813E-02
SB-124	97.	602.73	8.0666E-02
SB-125	131.	427.89	2.3479E-01
TE-125m	430.	109.27	1.9477E+01
I-129	203.	39.60	5.6164E-01
I-131	159.	364.48	8.2438E-02
XE-131m	436.	163.93	3.3201E+00
BA-133	160.	356.02	1.0597E-01
CS-134	97.	604.70	8.1101E-02
CS-136	67.	818.51	8.5235E-02
CS-137	101.	661.66	1.0250E-01
CS-138	19.	1435.86	1.4909E-01
CE-139	430.	165.85	8.1314E-02
BA-140	96.	537.31	2.9219E-01
LA-140	21.	1596.21	8.4678E-02
CE-141	448.	145.44	1.2910E-01
CE-144	422.	133.51	5.2503E-01
CEPR-144	422.	133.51	1.0494E+00
EU-152	32.	1408.01	4.3448E-01
EU-154	46.	1274.51	2.9217E-01
EU-155	440.	86.54	1.6175E-01
HF-181	109.	482.18	8.6279E-02
TA-182	294.	67.75	1.0447E-01

Sample ID : WL4574-BLK Acquisition date : 30-DEC-1995 16:50:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
HG-203	252.	279.20	8.4399E-02
BI-207	85.	569.70	7.2003E-02
TL-208	276.	277.36	1.1355E+00
PB-210	216.	46.50	9.9604E-01
BI-212	87.	727.18	1.3140E+00
PB-212	407.	238.63	1.7989E-01
BI-214	269.	609.31	2.9583E-01
PB-214	349.	351.92	4.7999E-01
RA-224	340.	240.99	1.8229E+00
RA-226	427.	186.10	1.9674E+00
AC-228	126.	911.21	4.7847E-01
TH-228	461.	84.37	4.2777E+00
TH-229	420.	88.47	2.1033E-01
U-232	279.	57.78	2.1441E+01
PA-233	220.	312.17	1.8082E-01
PA-234M	47.	1001.03	1.4195E-01
TH-234	309.	63.29	9.8689E-01
U-235	432.	185.71	1.2026E-01
NP-237	442.	86.48	4.2877E-01
U-237	273.	59.54	1.2253E-01
NP-238	43.	984.45	2.8658E-01
NP-239	425.	106.12	2.3792E-01
PU-239	457.	129.30	9.3409E+02
AM-241	273.	59.54	1.1754E-01
AM-243	528.	74.67	9.5872E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 19:15:15.03                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4574
Sample ID:               S95T003650-SAM
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1112.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:00.50 sec
Dead Time:               3.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 18:22:35.26
Decayed to:              30-DEC-1995 18:22:35.26
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:  13-DEC-1995 10:49:51.10
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: 12-30-95

Verified by: 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.76	76648	1.08	63.87	60	8	1.1			
0	36.28	21557	1.17	72.90	69	9	2.7			
0	188.93	10278	8.50	378.07	364	35	15.8			
0	644.13	204	0.96	1288.22	1285	8	72.8			
0	661.82*	455034	1.50	1323.60	1315	17	0.3		CS-137	328.
0	1173.88	50	0.79	2347.70	2343	11	44.0			
0	1323.61	49	1.10	2647.20	2640	17	54.4			
0	1765.65	50	1.96	3531.56	3522	21	48.7			

Sample ID : S95T003650-SAM
Acquisition date : 30-DEC-1995 18:22:35

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	8	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	3	37.50%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	3.283E+02	3.283E+02	0.010E+02	0.31	
		Total Activity :	3.283E+02	3.283E+02			
		Grand Total Activity :	3.283E+02	3.283E+02			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	14296.	477.59	2.4453E+00
NA-22	57.	1274.53	3.8682E-02
NA-24	21.	1368.55	2.5516E-02
K-40	558.	1460.75	1.2673E+00
SC-46	99.	1120.55	4.5837E-02
CR-51	11162.	320.08	1.5663E+00
MN-54	73.	834.83	3.0266E-02
CO-56	54.	846.76	2.6281E-02
CO-57	10238.	122.06	9.8370E-02
CO-58	62.	810.78	2.7310E-02
FE-59	54.	1099.25	5.8845E-02
CO-60	51.	1332.50	3.8087E-02
ZN-65	43.	1115.55	5.9337E-02
SE-75	11086.	264.66	2.3143E-01
KR-85	6933.	514.00	4.3419E+01
SR-85	6931.	514.01	1.9630E-01
Y-88	4.	1836.06	1.3655E-02
Y-90	9.	1760.70	6.9870E-02
Y-91	51.	1204.67	1.1712E+01
NB-94	55.	871.09	2.7214E-02
NB-95	55.	765.78	2.4334E-02
ZR-95	75.	756.73	5.1583E-02
RU-103	8525.	497.08	2.2277E-01
RURH-106	2201.	621.93	2.5532E+00
AG-108m	101.	722.94	3.4416E-02
CD-109	9147.	88.03	2.0799E+00
AG-110M	10987.	657.76	3.1503E-01
SN-113	12437.	391.69	3.0896E-01
TE-123m	10224.	159.00	1.1202E-01
SB-124	2341.	602.73	1.2973E-01
SB-125	14861.	427.89	7.9483E-01
TE-125m	9646.	109.27	2.8211E+01
I-129	8587.	39.60	1.2785E+00
I-131	11678.	364.48	2.2203E-01
XE-131m	10347.	163.93	4.9093E+00
BA-133	11577.	356.02	2.8311E-01
CS-134	2309.	604.70	1.2945E-01
CS-136	63.	818.51	2.7777E-02
CS-138	14.	1435.86	4.6045E-02
CE-139	10382.	165.85	1.2127E-01
BA-140	5070.	537.31	6.8890E-01
LA-140	17.	1596.21	2.7064E-02
CE-141	10282.	145.44	1.8782E-01
CE-144	10331.	133.51	7.8977E-01
CEPR-144	10331.	133.51	1.5781E+00
EU-152	26.	1408.01	1.3661E-01
EU-154	57.	1274.51	1.1246E-01
EU-155	9297.	86.54	2.3060E-01
HF-181	11018.	482.18	2.7844E-01
TA-182	8671.	67.75	1.8061E-01
HG-203	10919.	279.20	1.7185E-01

Sample ID : S95T003650-SAM Acquisition date : 30-DEC-1995 18:22:35

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2861.	569.70	1.3609E-01
TL-208	11138.	277.36	2.2287E+00
PB-210	8531.	46.50	2.1141E+00
BI-212	81.	727.18	4.2344E-01
PB-212	11557.	238.63	2.9386E-01
BI-214	2441.	609.31	2.9202E-01
PB-214	11637.	351.92	8.8614E-01
RA-224	11392.	240.99	3.2377E+00
RA-226	15465.	186.10	3.6011E+00
AC-228	131.	911.21	1.6530E-01
TH-228	9305.	84.37	5.9731E+00
TH-229	9126.	88.47	3.0372E-01
U-232	8468.	57.78	3.8403E+01
PA-233	10880.	312.17	3.9564E-01
PA-234M	38.	1001.03	4.3343E-02
TH-234	8637.	63.29	1.6758E+00
U-235	15306.	185.71	2.1780E-01
NP-237	9302.	86.48	6.1013E-01
U-237	8555.	59.54	2.2190E-01
NP-238	45.	984.45	9.9577E-02
NP-239	9441.	106.12	3.4328E-01
PU-239	10182.	129.30	1.3404E+03
AM-241	8555.	59.54	2.1285E-01
AM-243	9418.	74.67	1.2743E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 20:16:43.15                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4574
Sample ID:               S95T003650-DUP
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1113.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:47.53 sec
Dead Time:               3.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 19:23:56.19
Decayed to:              30-DEC-1995 19:23:56.19
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:   13-DEC-1995 10:49:51.10
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: A J Johnson 12-30-95

Verified by: B Machelor 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.76	67971	1.07	63.88	60	8	1.1			
0	36.28	19122	1.15	72.90	69	10	3.1			
0	75.04*	277	1.09	150.40	148	6	107.8		AM-243	7.834E-02
0	661.83*	404049	1.51	1323.62	1315	17	0.3		CS-137	292.
0	1590.97*	30	6.91	3182.07	3167	28	68.5			

Sample ID : S95T003650-DUP
Acquisition date : 30-DEC-1995 19:23:56

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	5	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	2	40.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.915E+02	2.915E+02	0.009E+02	0.33	
~~AM-243~~	~~7380.00Y~~	~~1.000~~	~~7.834E-02~~	~~7.834E-02~~	~~8.442E-02~~	~~107.76~~	BKG
		Total Activity :	2.916E+02	2.916E+02			
		Grand Total Activity :	2.916E+02	2.916E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	12572.	477.59	2.2931E+00
NA-22	46.	1274.53	3.4674E-02
NA-24	10.	1368.55	1.7679E-02
K-40	574.	1460.75	1.2860E+00
SC-46	97.	1120.55	4.5359E-02
CR-51	9665.	320.08	1.4575E+00
MN-54	72.	834.83	3.0015E-02
CO-56	54.	846.76	2.6403E-02
CO-57	9256.	122.06	9.3532E-02
CO-58	60.	810.78	2.6793E-02
FE-59	44.	1099.25	5.3283E-02
CO-60	41.	1332.50	3.4118E-02
ZN-65	34.	1115.55	5.2993E-02
SE-75	9989.	264.66	2.1968E-01
KR-85	6295.	514.00	4.1372E+01
SR-85	6294.	514.01	1.8706E-01
Y-88	4.	1836.06	1.3655E-02
Y-90	17.	1760.70	9.5861E-02
Y-91	54.	1204.67	1.1956E+01
NB-94	66.	871.09	2.9986E-02
NB-95	77.	765.78	2.8815E-02
ZR-95	56.	756.73	4.4644E-02
RU-103	7584.	497.08	2.1011E-01
RURH-106	1939.	621.93	2.3963E+00
AG-108m	82.	722.94	3.0861E-02
CD-109	8308.	88.03	1.9822E+00
AG-110M	9659.	657.76	2.9539E-01
SN-113	11053.	391.69	2.9126E-01
TE-123m	9270.	159.00	1.0666E-01
SB-124	2063.	602.73	1.2177E-01
SB-125	13040.	427.89	7.4453E-01
TE-125m	8732.	109.27	2.6840E+01
I-129	7701.	39.60	1.2108E+00
I-131	10321.	364.48	2.0873E-01
XE-131m	9497.	163.93	4.7033E+00
BA-133	10040.	356.02	2.6365E-01
CS-134	2038.	604.70	1.2162E-01
CS-136	66.	818.51	2.8428E-02
CS-138	16.	1435.86	4.9409E-02
CE-139	9299.	165.85	1.1477E-01
BA-140	4436.	537.31	6.4437E-01
LA-140	20.	1596.21	2.8730E-02
CE-141	9190.	145.44	1.7757E-01
CE-144	9087.	133.51	7.4071E-01
CEPR-144	9087.	133.51	1.4800E+00
EU-152	23.	1408.01	1.2905E-01
EU-154	46.	1274.51	1.0074E-01
EU-155	8430.	86.54	2.1959E-01
HF-181	9866.	482.18	2.6349E-01
TA-182	7578.	67.75	1.6884E-01
HG-203	9713.	279.20	1.6208E-01

Sample ID : S95T003650-DUP Acquisition date : 30-DEC-1995 19:23:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2646.	569.70	1.3087E-01
TL-208	9817.	277.36	2.0923E+00
PB-210	7434.	46.50	1.9735E+00
BI-212	84.	727.18	4.3027E-01
PB-212	10325.	238.63	2.7775E-01
BI-214	2164.	609.31	2.7497E-01
PB-214	10066.	351.92	8.2235E-01
RA-224	10211.	240.99	3.0653E+00
RA-226	13603.	186.10	3.3773E+00
AC-228	141.	911.21	1.7099E-01
TH-228	8490.	84.37	5.7057E+00
TH-229	8190.	88.47	2.8772E-01
U-232	7478.	57.78	3.6088E+01
PA-233	9694.	312.17	3.7346E-01
PA-234M	46.	1001.03	4.8112E-02
TH-234	7747.	63.29	1.5872E+00
U-235	13393.	185.71	2.0373E-01
NP-237	8436.	86.48	5.8102E-01
U-237	7685.	59.54	2.1031E-01
NP-238	52.	984.45	1.0703E-01
NP-239	8457.	106.12	3.2489E-01
PU-239	9263.	129.30	1.2785E+03
AM-241	7685.	59.54	2.0174E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 21:12:22.00                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4574
Sample ID:               S95T003651-SAM
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1114.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:39.50 sec
Dead Time:               3.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 20:20:06.20
Decayed to:              30-DEC-1995 20:20:06.20
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:   13-DEC-1995 10:49:51.10
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: 12-30-95

Verified by: 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.73	64891	1.08	63.81	59	10	1.3			
0	36.28	17561	1.16	72.91	69	10	3.2			
0	661.84*	371814	1.49	1323.64	1316	16	0.3		CS-137	268.

Sample ID : S95T003651-SAM
Acquisition date : 30-DEC-1995 20:20:06

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	3	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	1	33.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.683E+02	2.683E+02	0.009E+02	0.34	
		Total Activity :	2.683E+02	2.683E+02			
		Grand Total Activity :	2.683E+02	2.683E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T003651-SAM Acquisition date : 30-DEC-1995 20:20:06

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	11531.	477.59	2.1962E+00
NA-22	56.	1274.53	3.8553E-02
NA-24	19.	1368.55	2.4249E-02
K-40	582.	1460.75	1.2944E+00
SC-46	76.	1120.55	4.0136E-02
CR-51	8974.	320.08	1.4043E+00
MN-54	62.	834.83	2.7940E-02
CO-56	52.	846.76	2.5956E-02
CO-57	8604.	122.06	9.0177E-02
CO-58	53.	810.78	2.5256E-02
FE-59	51.	1099.25	5.7108E-02
CO-60	35.	1332.50	3.1534E-02
ZN-65	54.	1115.55	6.6635E-02
SE-75	9302.	264.66	2.1199E-01
KR-85	5801.	514.00	3.9718E+01
SR-85	5800.	514.01	1.7958E-01
Y-88	4.	1836.06	1.3655E-02
Y-90	10.	1760.70	7.2207E-02
Y-91	52.	1204.67	1.1811E+01
NB-94	50.	871.09	2.6123E-02
NB-95	43.	765.78	2.1527E-02
ZR-95	71.	756.73	5.0217E-02
RU-103	7010.	497.08	2.0200E-01
RURH-106	1802.	621.93	2.3101E+00
AG-108m	75.	722.94	2.9651E-02
CD-109	7604.	88.03	1.8964E+00
AG-110M	8765.	657.76	2.8138E-01
SN-113	10215.	391.69	2.8001E-01
TE-123m	8625.	159.00	1.0289E-01
SB-124	1927.	602.73	1.1769E-01
SB-125	11928.	427.89	7.1206E-01
TE-125m	7964.	109.27	2.5633E+01
I-129	7098.	39.60	1.1624E+00
I-131	9419.	364.48	1.9940E-01
XE-131m	8619.	163.93	4.4805E+00
BA-133	9320.	356.02	2.5402E-01
CS-134	1914.	604.70	1.1789E-01
CS-136	57.	818.51	2.6462E-02
CS-138	14.	1435.86	4.5391E-02
CE-139	8666.	165.85	1.1080E-01
BA-140	3976.	537.31	6.1003E-01
LA-140	15.	1596.21	2.4782E-02
CE-141	8683.	145.44	1.7261E-01
CE-144	8489.	133.51	7.1591E-01
CEPR-144	8489.	133.51	1.4305E+00
EU-152	33.	1408.01	1.5372E-01
EU-154	56.	1274.51	1.1197E-01
EU-155	7816.	86.54	2.1145E-01
HF-181	9093.	482.18	2.5295E-01
TA-182	7390.	67.75	1.6674E-01
HG-203	9026.	279.20	1.5625E-01

Sample ID : S95T003651-SAM Acquisition date : 30-DEC-1995 20:20:06

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2344.	569.70	1.2317E-01
TL-208	9084.	277.36	2.0128E+00
PB-210	7074.	46.50	1.9251E+00
BI-212	89.	727.18	4.4369E-01
PB-212	9471.	238.63	2.6602E-01
BI-214	2038.	609.31	2.6687E-01
PB-214	9361.	351.92	7.9195E-01
RA-224	9578.	240.99	2.9688E+00
RA-226	12738.	186.10	3.2682E+00
AC-228	123.	911.21	1.5985E-01
TH-228	7805.	84.37	5.4705E+00
TH-229	7600.	88.47	2.7717E-01
U-232	7097.	57.78	3.5155E+01
PA-233	9047.	312.17	3.6078E-01
PA-234M	54.	1001.03	5.1955E-02
TH-234	7258.	63.29	1.5363E+00
U-235	12607.	185.71	1.9766E-01
NP-237	7819.	86.48	5.5938E-01
U-237	7242.	59.54	2.0415E-01
NP-238	49.	984.45	1.0373E-01
NP-239	7870.	106.12	3.1341E-01
PU-239	8427.	129.30	1.2194E+03
AM-241	7242.	59.54	1.9583E-01
AM-243	7760.	74.67	1.1567E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 22:05:21.56                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4574
Sample ID:               S95T003651-DUP
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1115.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:49.06 sec
Dead Time:               3.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 21:12:53.44
Decayed to:              30-DEC-1995 21:12:53.44
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:   13-DEC-1995 10:49:51.10
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: 12-30-95

Verified by: 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.73	71737	1.09	63.82	59	9	1.1			
0	36.26	19296	1.19	72.88	69	9	2.9			
0	75.03*	361	0.77	150.37	148	7	94.1		AM-243	0.102
0	661.84*	410478	1.50	1323.63	1316	16	0.3		CS-137	296.
0	1322.86	36	1.44	2645.71	2639	15	62.2			
0	1377.84*	11	1.74	2755.69	2753		7108.8			
0	1461.10*	39	1.80	2922.24	2912		19136.6		K-40	0.450

Summary of Nuclide Activity
Sample ID : S95T003651-DUP

Acquisition date : 30-DEC-1995 21:12:53

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	7	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	3	42.86%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~4.495E-01~~	~~4.495E-01~~	~~6.142E-01~~	~~136.63~~	BKG
CS-137	30.00Y	1.000	2.962E+02	2.962E+02	0.001E+03	0.32	
~~AM-243~~	~~7380.00Y~~	~~1.000~~	~~1.019E-01~~	~~1.019E-01~~	~~0.959E-01~~	~~94.13~~	BKG
			---	---			
	Total Activity :		2.967E+02	2.967E+02			

Grand Total Activity : 2.967E+02 2.967E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T003651-DUP
Acquisition date : 30-DEC-1995 21:12:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	12856.	477.59	2.3189E+00
NA-22	58.	1274.53	3.8953E-02
NA-24	15.	1368.55	2.1708E-02
SC-46	91.	1120.55	4.3915E-02
CR-51	10078.	320.08	1.4883E+00
MN-54	63.	834.83	2.8097E-02
CO-56	64.	846.76	2.8646E-02
CO-57	9530.	122.06	9.4905E-02
CO-58	50.	810.78	2.4465E-02
FE-59	42.	1099.25	5.2217E-02
CO-60	33.	1332.50	3.0656E-02
ZN-65	37.	1115.55	5.5219E-02
SE-75	10079.	264.66	2.2066E-01
KR-85	6401.	514.00	4.1718E+01
SR-85	6400.	514.01	1.8863E-01
Y-88	9.	1836.06	2.0981E-02
Y-90	9.	1760.70	6.9290E-02
Y-91	53.	1204.67	1.1897E+01
NB-94	63.	871.09	2.9244E-02
NB-95	71.	765.78	2.7586E-02
ZR-95	67.	756.73	4.8742E-02
RU-103	7972.	497.08	2.1542E-01
RURH-106	2026.	621.93	2.4493E+00
AG-108m	82.	722.94	3.1021E-02
CD-109	8451.	88.03	1.9993E+00
AG-110M	9798.	657.76	2.9750E-01
SN-113	11203.	391.69	2.9323E-01
TE-123m	9338.	159.00	1.0706E-01
SB-124	2097.	602.73	1.2276E-01
SB-125	13271.	427.89	7.5110E-01
TE-125m	8892.	109.27	2.7086E+01
I-129	7805.	39.60	1.2189E+00
I-131	10411.	364.48	2.0964E-01
XE-131m	9344.	163.93	4.6653E+00
BA-133	10451.	356.02	2.6899E-01
CS-134	2135.	604.70	1.2450E-01
CS-136	68.	818.51	2.8894E-02
CS-138	19.	1435.86	5.2980E-02
CE-139	9401.	165.85	1.1539E-01
BA-140	4557.	537.31	6.5309E-01
LA-140	18.	1596.21	2.7292E-02
CE-141	9240.	145.44	1.7805E-01
CE-144	9422.	133.51	7.5421E-01
CEPR-144	9422.	133.51	1.5070E+00
EU-152	32.	1408.01	1.5089E-01
EU-154	58.	1274.51	1.1325E-01
EU-155	8552.	86.54	2.2117E-01
HF-181	9992.	482.18	2.6515E-01
TA-182	8050.	67.75	1.7403E-01
HG-203	9892.	279.20	1.6357E-01
BI-207	2614.	569.70	1.3009E-01

Sample ID : S95T003651-DUP Acquisition date : 30-DEC-1995 21:12:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	9963.	277.36	2.1078E+00
PB-210	8021.	46.50	2.0499E+00
BI-212	87.	727.18	4.3733E-01
PB-212	10489.	238.63	2.7995E-01
BI-214	2225.	609.31	2.7885E-01
PB-214	10388.	351.92	8.3560E-01
RA-224	10484.	240.99	3.1061E+00
RA-226	14021.	186.10	3.4289E+00
AC-228	125.	911.21	1.6140E-01
TH-228	8718.	84.37	5.7817E+00
TH-229	8430.	88.47	2.9190E-01
U-232	7901.	57.78	3.7093E+01
PA-233	10129.	312.17	3.8174E-01
PA-234M	55.	1001.03	5.2231E-02
TH-234	8141.	63.29	1.6271E+00
U-235	13770.	185.71	2.0659E-01
NP-237	8561.	86.48	5.8532E-01
U-237	8019.	59.54	2.1484E-01
NP-238	54.	984.45	1.0978E-01
NP-239	8748.	106.12	3.3043E-01
PU-239	9468.	129.30	1.2926E+03
AM-241	8020.	59.54	2.0608E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 23:14:30.74                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4574
Sample ID:               S95T003652-SAM
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1116.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:46.73 sec
Dead Time:               3.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 22:22:06.48
Decayed to:              30-DEC-1995 22:22:06.48
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:   13-DEC-1995 10:49:51.10
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: 12-30-95

Verified by: 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.73	70165	1.08	63.81	59	9	1.2			
0	36.24	18579	1.19	72.82	69	9	2.9			
0	661.84*	400362	1.50	1323.63	1316	16	0.3		CS-137	289.
0	1239.31	42	1.03	2478.56	2473	15	68.1			
0	1327.56	60	13.19	2655.11	2644	30	70.1			
0	1765.70	44	2.36	3531.66	3521	19	56.3			

Sample ID : S95T003652-SAM
Acquisition date : 30-DEC-1995 22:22:06

Total number of lines in spectrum 6
Number of unidentified lines 3
Number of lines tentatively identified by NID 3 50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.889E+02	2.889E+02	0.009E+02	0.33	
		Total Activity :	2.889E+02	2.889E+02			
		Grand Total Activity :	2.889E+02	2.889E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T003652-SAM
Acquisition date : 30-DEC-1995 22:22:06

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	12476.	477.59	2.2843E+00
NA-22	41.	1274.53	3.2728E-02
NA-24	13.	1368.55	2.0138E-02
K-40	586.	1460.75	1.2986E+00
SC-46	94.	1120.55	4.4530E-02
CR-51	9482.	320.08	1.4436E+00
MN-54	52.	834.83	2.5588E-02
CO-56	52.	846.76	2.5994E-02
CO-57	9399.	122.06	9.4253E-02
CO-58	51.	810.78	2.4857E-02
FE-59	51.	1099.25	5.7008E-02
CO-60	32.	1332.50	3.0202E-02
ZN-65	52.	1115.55	6.5007E-02
SE-75	9835.	264.66	2.1798E-01
KR-85	6132.	514.00	4.0832E+01
SR-85	6130.	514.01	1.8461E-01
Y-88	6.	1836.06	1.6724E-02
Y-90	11.	1760.70	7.8270E-02
Y-91	51.	1204.67	1.1601E+01
NB-94	60.	871.09	2.8666E-02
NB-95	61.	765.78	2.5641E-02
ZR-95	77.	756.73	5.2172E-02
RU-103	7522.	497.08	2.0925E-01
RURH-106	1919.	621.93	2.3840E+00
AG-108m	93.	722.94	3.3034E-02
CD-109	8106.	88.03	1.9580E+00
AG-110M	9620.	657.76	2.9479E-01
SN-113	10895.	391.69	2.8918E-01
TE-123m	9223.	159.00	1.0639E-01
SB-124	1988.	602.73	1.1955E-01
SB-125	12722.	427.89	7.3539E-01
TE-125m	8698.	109.27	2.6788E+01
I-129	7491.	39.60	1.1942E+00
I-131	10162.	364.48	2.0712E-01
XE-131m	9166.	163.93	4.6208E+00
BA-133	10148.	356.02	2.6506E-01
CS-134	1978.	604.70	1.1981E-01
CS-136	53.	818.51	2.5415E-02
CS-138	16.	1435.86	4.9005E-02
CE-139	9054.	165.85	1.1325E-01
BA-140	4269.	537.31	6.3210E-01
LA-140	20.	1596.21	2.8623E-02
CE-141	9067.	145.44	1.7638E-01
CE-144	9271.	133.51	7.4817E-01
CEPR-144	9271.	133.51	1.4950E+00
EU-152	26.	1408.01	1.3659E-01
EU-154	41.	1274.51	9.5130E-02
EU-155	8349.	86.54	2.1853E-01
HF-181	9948.	482.18	2.6457E-01
TA-182	7715.	67.75	1.7036E-01
HG-203	9659.	279.20	1.6163E-01

Sample ID : S95T003652-SAM Acquisition date : 30-DEC-1995 22:22:06

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2559.	569.70	1.2870E-01
TL-208	9767.	277.36	2.0870E+00
PB-210	7460.	46.50	1.9769E+00
BI-212	82.	727.18	4.2424E-01
PB-212	10068.	238.63	2.7428E-01
BI-214	2051.	609.31	2.6771E-01
PB-214	10094.	351.92	8.2337E-01
RA-224	10096.	240.99	3.0480E+00
RA-226	13490.	186.10	3.3632E+00
AC-228	130.	911.21	1.6421E-01
TH-228	8291.	84.37	5.6384E+00
TH-229	8052.	88.47	2.8528E-01
U-232	7539.	57.78	3.6234E+01
PA-233	9781.	312.17	3.7514E-01
PA-234M	56.	1001.03	5.2980E-02
TH-234	7581.	63.29	1.5701E+00
U-235	13305.	185.71	2.0307E-01
NP-237	8353.	86.48	5.7818E-01
U-237	7631.	59.54	2.0957E-01
NP-238	46.	984.45	1.0139E-01
NP-239	8429.	106.12	3.2435E-01
PU-239	9004.	129.30	1.2605E+03
AM-241	7631.	59.54	2.0103E-01
AM-243	8314.	74.67	1.1973E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   31-DEC-1995 00:14:35.88                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-164, REV.)

```
Worklist #:              4574
Sample ID:               S95T003652-DUP
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: 12-31-95

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1117.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:50.68 sec
Dead Time:               3.6%
```

Verified by: 1/2/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 23:22:05.92
Decayed to:              30-DEC-1995 23:22:05.92
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:   13-DEC-1995 10:49:51.10
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.75	70009	1.08	63.86	60	9	1.2			
0	36.27	19236	1.16	72.90	69	10	3.1			
0	74.67*	334	1.15	149.66	148	6	89.9		AM-243	9.418E-02
0	188.70	9154	6.83	377.62	364	35	16.9			
0	661.84*	413424	1.49	1323.64	1316	16	0.3		CS-137	298.

Sample ID : S95T003652-DUP
Acquisition date : 30-DEC-1995 23:22:05

Total number of lines in spectrum 5
Number of unidentified lines 3
Number of lines tentatively identified by NID 2 40.00%

WHC-SD-WM-DP-164, REV. 1

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.983E+02	2.983E+02	0.001E+03	0.32	
~~AM-243~~	~~7380.00Y~~	~~1.000~~	~~9.418E-02~~	~~9.418E-02~~	~~8.471E-02~~	~~89.94~~	~~BKG~~
Total Activity :			2.984E+02	2.984E+02			
Grand Total Activity :			2.984E+02	2.984E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T003652-DUP
Acquisition date : 30-DEC-1995 23:22:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	12875.	477.59	2.3206E+00
NA-22	44.	1274.53	3.3953E-02
NA-24	16.	1368.55	2.2157E-02
K-40	533.	1460.75	1.2385E+00
SC-46	86.	1120.55	4.2604E-02
CR-51	10114.	320.08	1.4909E+00
MN-54	59.	834.83	2.7119E-02
CO-56	55.	846.76	2.6700E-02
CO-57	9591.	122.06	9.5210E-02
CO-58	56.	810.78	2.5884E-02
FE-59	53.	1099.25	5.8189E-02
CO-60	43.	1332.50	3.4929E-02
ZN-65	40.	1115.55	5.7020E-02
SE-75	9983.	264.66	2.1961E-01
KR-85	6392.	514.00	4.1691E+01
SR-85	6392.	514.01	1.8851E-01
Y-88	8.	1836.06	1.9567E-02
Y-90	14.	1760.70	8.6065E-02
Y-91	46.	1204.67	1.1084E+01
NB-94	54.	871.09	2.7179E-02
NB-95	81.	765.78	2.9542E-02
ZR-95	72.	756.73	5.0477E-02
RU-103	7670.	497.08	2.1130E-01
RURH-106	2035.	621.93	2.4546E+00
AG-108m	92.	722.94	3.2854E-02
CD-109	8397.	88.03	1.9928E+00
AG-110M	9635.	657.76	2.9502E-01
SN-113	11224.	391.69	2.9350E-01
TE-123m	9475.	159.00	1.0784E-01
SB-124	2103.	602.73	1.2296E-01
SB-125	13134.	427.89	7.4722E-01
TE-125m	9060.	109.27	2.7340E+01
I-129	7682.	39.60	1.2093E+00
I-131	10580.	364.48	2.1134E-01
XE-131m	9570.	163.93	4.7213E+00
BA-133	10546.	356.02	2.7021E-01
CS-134	2087.	604.70	1.2307E-01
CS-136	67.	818.51	2.8492E-02
CS-138	19.	1435.86	5.4145E-02
CE-139	9539.	165.85	1.1624E-01
BA-140	4548.	537.31	6.5246E-01
LA-140	18.	1596.21	2.7140E-02
CE-141	9336.	145.44	1.7897E-01
CE-144	9548.	133.51	7.5924E-01
CEPR-144	9549.	133.51	1.5172E+00
EU-152	30.	1408.01	1.4610E-01
EU-154	44.	1274.51	9.8690E-02
EU-155	8417.	86.54	2.1942E-01
HF-181	10276.	482.18	2.6890E-01
TA-182	7854.	67.75	1.7190E-01
HG-203	10009.	279.20	1.6453E-01

Sample ID : S95T003652-DUP Acquisition date : 30-DEC-1995 23:22:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2599.	569.70	1.2970E-01
TL-208	10022.	277.36	2.1141E+00
PB-210	7730.	46.50	2.0124E+00
BI-212	94.	727.18	4.5479E-01
PB-212	10601.	238.63	2.8144E-01
BI-214	2152.	609.31	2.7421E-01
PB-214	10485.	351.92	8.3972E-01
RA-224	10399.	240.99	3.0935E+00
RA-226	14133.	186.10	3.4425E+00
AC-228	121.	911.21	1.5833E-01
TH-228	8576.	84.37	5.7345E+00
TH-229	8411.	88.47	2.9157E-01
U-232	7668.	57.78	3.6542E+01
PA-233	10050.	312.17	3.8025E-01
PA-234M	48.	1001.03	4.9141E-02
TH-234	7866.	63.29	1.5994E+00
U-235	13903.	185.71	2.0758E-01
NP-237	8426.	86.48	5.8070E-01
U-237	7763.	59.54	2.1137E-01
NP-238	36.	984.45	8.9378E-02
NP-239	8825.	106.12	3.3189E-01
PU-239	9272.	129.30	1.2791E+03
AM-241	7763.	59.54	2.0276E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   31-DEC-1995 02:24:05.55                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4574
Sample ID:               S95T003653-SAM
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]lg1118.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:48.55 sec
Dead Time:               3.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       31-DEC-1995 01:31:13.85
Decayed to:              31-DEC-1995 01:31:13.85
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:   13-DEC-1995 10:49:51.10
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: 12-31-95

Verified by: 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.75	67887	1.10	63.85	60	9	1.2			
0	36.28	19047	1.16	72.91	69	11	3.3			
0	74.93*	362	0.98	150.18	148	7	93.7		AM-243	0.102
0	189.62	8746	9.19	379.45	364	36	18.1			
0	661.85*	403324	1.49	1323.64	1316	16	0.3		CS-137	291.
0	693.34	48	1.03	1386.62	1382	10	100.0			

Sample ID : S95T003653-SAM
Acquisition date : 31-DEC-1995 01:31:13

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	6	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	3	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.910E+02	2.910E+02	0.009E+02	0.33	
~~AM-243~~	~~7380.00Y~~	~~1.000~~	~~1.022E-01~~	~~1.022E-01~~	~~0.958E-01~~	~~93.74~~	BKG
Total Activity :			2.911E+02	2.911E+02			
Grand Total Activity :			2.911E+02	2.911E+02			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	12629.	477.59	2.2983E+00
NA-22	40.	1274.53	3.2352E-02
NA-24	14.	1368.55	2.0871E-02
K-40	564.	1460.75	1.2739E+00
SC-46	83.	1120.55	4.1937E-02
CR-51	9767.	320.08	1.4651E+00
MN-54	76.	834.83	3.0809E-02
CO-56	58.	846.76	2.7261E-02
CO-57	9438.	122.06	9.4449E-02
CO-58	52.	810.78	2.4910E-02
FE-59	56.	1099.25	5.9843E-02
CO-60	45.	1332.50	3.5755E-02
ZN-65	45.	1115.55	6.0360E-02
SE-75	9959.	264.66	2.1935E-01
KR-85	6230.	514.00	4.1159E+01
SR-85	6228.	514.01	1.8608E-01
Y-88	8.	1836.06	1.9567E-02
Y-90	17.	1760.70	9.4550E-02
Y-91	37.	1204.67	9.9659E+00
NB-94	50.	871.09	2.6073E-02
NB-95	72.	765.78	2.7846E-02
ZR-95	65.	756.73	4.7931E-02
RU-103	7555.	497.08	2.0971E-01
RURH-106	1957.	621.93	2.4071E+00
AG-108m	81.	722.94	3.0707E-02
CD-109	8384.	88.03	1.9913E+00
AG-110M	9422.	657.76	2.9174E-01
SN-113	11222.	391.69	2.9348E-01
TE-123m	9236.	159.00	1.0647E-01
SB-124	2125.	602.73	1.2359E-01
SB-125	13063.	427.89	7.4519E-01
TE-125m	8596.	109.27	2.6632E+01
I-129	7849.	39.60	1.2224E+00
I-131	10354.	364.48	2.0906E-01
XE-131m	9292.	163.93	4.6524E+00
BA-133	10106.	356.02	2.6452E-01
CS-134	2094.	604.70	1.2328E-01
CS-136	52.	818.51	2.5291E-02
CS-138	17.	1435.86	5.1150E-02
CE-139	9477.	165.85	1.1586E-01
BA-140	4393.	537.31	6.4119E-01
LA-140	10.	1596.21	2.0096E-02
CE-141	9369.	145.44	1.7929E-01
CE-144	9334.	133.51	7.5068E-01
CEPR-144	9334.	133.51	1.5000E+00
EU-152	28.	1408.01	1.4072E-01
EU-154	40.	1274.51	9.3802E-02
EU-155	8418.	86.54	2.1944E-01
HF-181	9813.	482.18	2.6278E-01
TA-182	7896.	67.75	1.7235E-01
HG-203	9820.	279.20	1.6297E-01

Sample ID : S95T003653-SAM Acquisition date : 31-DEC-1995 01:31:13

WHC-SD-WM-DP-164, REV.)

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2603.	569.70	1.2979E-01
TL-208	9875.	277.36	2.0985E+00
PB-210	7744.	46.50	2.0142E+00
BI-212	89.	727.18	4.4351E-01
PB-212	10175.	238.63	2.7574E-01
BI-214	2133.	609.31	2.7299E-01
PB-214	10246.	351.92	8.2979E-01
RA-224	10342.	240.99	3.0850E+00
RA-226	13818.	186.10	3.4039E+00
AC-228	126.	911.21	1.6186E-01
TH-228	8361.	84.37	5.6619E+00
TH-229	8267.	88.47	2.8906E-01
U-232	7737.	57.78	3.6708E+01
PA-233	9648.	312.17	3.7257E-01
PA-234M	56.	1001.03	5.3083E-02
TH-234	7928.	63.29	1.6056E+00
U-235	13577.	185.71	2.0513E-01
NP-237	8426.	86.48	5.8069E-01
U-237	7884.	59.54	2.1302E-01
NP-238	59.	984.45	1.1442E-01
NP-239	8575.	106.12	3.2715E-01
PU-239	9181.	129.30	1.2728E+03
AM-241	7884.	59.54	2.0433E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   31-DEC-1995 03:24:05.82                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4574
Sample ID:               S95T003653-DUP
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1119.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:38.06 sec
Dead Time:               3.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       31-DEC-1995 02:31:50.81
Decayed to:              31-DEC-1995 02:31:50.81
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       13-DEC-1995 10:25:45.49
 Date of last efficiency calibration:   13-DEC-1995 10:49:51.10
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: 12-31-95

Verified by: 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.75	62001	1.09	63.86	60	9	1.3			
0	36.29	17347	1.15	72.92	69	10	3.3			
0	661.85*	366602	1.50	1323.65	1315	17	0.3		CS-137	264.
0	1765.92	40	2.29	3532.11	3521	19	48.6			

Sample ID : S95T003653-DUP
Acquisition date : 31-DEC-1995 02:31:50

WHC-SD-WM-DP-164, REV. I

Total number of lines in spectrum	4	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	2	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.645E+02	2.645E+02	0.009E+02	0.34	
		Total Activity :	2.645E+02	2.645E+02			
		Grand Total Activity :	2.645E+02	2.645E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T003653-DUP Acquisition date : 31-DEC-1995 02:31:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	11449.	477.59	2.1883E+00
NA-22	48.	1274.53	3.5519E-02
NA-24	21.	1368.55	2.5595E-02
K-40	578.	1460.75	1.2900E+00
SC-46	97.	1120.55	4.5413E-02
CR-51	8974.	320.08	1.4044E+00
MN-54	55.	834.83	2.6287E-02
CO-56	60.	846.76	2.7720E-02
CO-57	8328.	122.06	8.8720E-02
CO-58	52.	810.78	2.5093E-02
FE-59	50.	1099.25	5.6564E-02
CO-60	33.	1332.50	3.0650E-02
ZN-65	54.	1115.55	6.6364E-02
SE-75	8973.	264.66	2.0820E-01
KR-85	5639.	514.00	3.9159E+01
SR-85	5639.	514.01	1.7707E-01
Y-88	6.	1836.06	1.6884E-02
Y-90	7.	1760.70	6.3003E-02
Y-91	44.	1204.67	1.0821E+01
NB-94	66.	871.09	2.9891E-02
NB-95	77.	765.78	2.8833E-02
ZR-95	89.	756.73	5.5998E-02
RU-103	6875.	497.08	2.0005E-01
RURH-106	1790.	621.93	2.3022E+00
AG-108m	74.	722.94	2.9399E-02
CD-109	7397.	88.03	1.8705E+00
AG-110M	8401.	657.76	2.7547E-01
SN-113	9797.	391.69	2.7421E-01
TE-123m	8389.	159.00	1.0147E-01
SB-124	1900.	602.73	1.1686E-01
SB-125	11755.	427.89	7.0689E-01
TE-125m	8076.	109.27	2.5814E+01
I-129	7305.	39.60	1.1793E+00
I-131	9439.	364.48	1.9961E-01
XE-131m	8494.	163.93	4.4481E+00
BA-133	9327.	356.02	2.5411E-01
CS-134	1866.	604.70	1.1639E-01
CS-136	62.	818.51	2.7608E-02
CS-138	16.	1435.86	4.9341E-02
CE-139	8426.	165.85	1.0925E-01
BA-140	4039.	537.31	6.1482E-01
LA-140	11.	1596.21	2.1841E-02
CE-141	8439.	145.44	1.7016E-01
CE-144	8361.	133.51	7.1049E-01
CEPR-144	8361.	133.51	1.4196E+00
EU-152	24.	1408.01	1.3176E-01
EU-154	48.	1274.51	1.0328E-01
EU-155	7626.	86.54	2.0886E-01
HF-181	9079.	482.18	2.5275E-01
TA-182	7160.	67.75	1.6412E-01
HG-203	8948.	279.20	1.5557E-01

Sample ID : S95T003653-DUP Acquisition date : 31-DEC-1995 02:31:50

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2358.	569.70	1.2353E-01
TL-208	8843.	277.36	1.9859E+00
PB-210	7108.	46.50	1.9297E+00
BI-212	108.	727.18	4.8822E-01
PB-212	9427.	238.63	2.6540E-01
BI-214	1883.	609.31	2.5650E-01
PB-214	9296.	351.92	7.8899E-01
RA-224	9306.	240.99	2.9263E+00
RA-226	12516.	186.10	3.2396E+00
AC-228	134.	911.21	1.6662E-01
TH-228	7756.	84.37	5.4532E+00
TH-229	7399.	88.47	2.7347E-01
U-232	7303.	57.78	3.5663E+01
PA-233	8789.	312.17	3.5560E-01
PA-234M	41.	1001.03	4.5504E-02
TH-234	7213.	63.29	1.5315E+00
U-235	12351.	185.71	1.9565E-01
NP-237	7640.	86.48	5.5296E-01
U-237	7338.	59.54	2.0551E-01
NP-238	52.	984.45	1.0710E-01
NP-239	7851.	106.12	3.1303E-01
PU-239	8458.	129.30	1.2217E+03
AM-241	7338.	59.54	1.9713E-01
AM-243	7911.	74.67	1.1679E-01

LABCORE Completed Worklist Report for Worklist# 4575

Analyst: knt **Instrument:** GEA03 **Book#** 144852

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: BY104 GEA S95T003654,55,56,57. SS=2ML. RTS

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01	C060-02	SOLID	0.021		2.08e-02	99.050	% Recovery
1	STD		0		@GEA-01	C060-02E	SOLID	1		1.35	1.350	% Ct. Error
1	STD		0		@GEA-01	CS13702	SOLID	0.0253		2.57e-02	101.580	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1		1.45	1.450	% Ct. Error
2	BLNK-PREP		0		@GEA-01	C060-02	SOLID	1		<7.21e-3		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1		<6.44e-3		uCi/g
3	SAMPLE	S95T003654	0	Z	@GEA-01	C060-02	SOLID	N/A	<	1.067e-02	7.000e-003	uCi/g
3	SAMPLE	S95T003654	0	Z	@GEA-01	C060-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T003654	0	Z	@GEA-01	CS13702	SOLID	N/A		1.149e+02	6.000e-003	uCi/g
3	SAMPLE	S95T003654	0	Z	@GEA-01	CS13702E	SOLID	N/A		.31	0.000	% Ct. Error
4	DUP	S95T003654	0	Z	@GEA-01	C060-02	SOLID	<1.07e-2		<8.88e-3		RPD
4	DUP	S95T003654	0	Z	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T003654	0	Z	@GEA-01	CS13702	SOLID	1.15e+02		1.25e+02	8.330	RPD
4	DUP	S95T003654	0	Z	@GEA-01	CS13702E	SOLID	1.00		.30	0.300	% Ct. Error
5	SAMPLE	S95T003655	0	Z	@GEA-01	C060-02	SOLID	N/A	<	1.121e-02	7.000e-003	uCi/g
5	SAMPLE	S95T003655	0	Z	@GEA-01	C060-02E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S95T003655	0	Z	@GEA-01	CS13702	SOLID	N/A		1.243e+02	6.000e-003	uCi/g
5	SAMPLE	S95T003655	0	Z	@GEA-01	CS13702E	SOLID	N/A		.30	0.000	% Ct. Error
6	DUP	S95T003655	0	Z	@GEA-01	C060-02	SOLID	<1.12e-2		<1.12e-2		RPD
6	DUP	S95T003655	0	Z	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
6	DUP	S95T003655	0	Z	@GEA-01	CS13702	SOLID	1.24e+02		1.15e+02	7.530	RPD
6	DUP	S95T003655	0	Z	@GEA-01	CS13702E	SOLID	1.00		.31	0.310	% Ct. Error
7	SAMPLE	S95T003656	0	Z	@GEA-01	C060-02	SOLID	N/A	<	8.988e-03	7.000e-003	uCi/g
7	SAMPLE	S95T003656	0	Z	@GEA-01	C060-02E	SOLID	N/A		n/a	0.000	% Ct. Error
7	SAMPLE	S95T003656	0	Z	@GEA-01	CS13702	SOLID	N/A		1.190e+02	6.000e-003	uCi/g
7	SAMPLE	S95T003656	0	Z	@GEA-01	CS13702E	SOLID	N/A		.29	0.000	% Ct. Error
8	DUP	S95T003656	0	Z	@GEA-01	C060-02	SOLID	<8.99e-3		<9.21e-3		RPD
8	DUP	S95T003656	0	Z	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
8	DUP	S95T003656	0	Z	@GEA-01	CS13702	SOLID	1.19e+02		1.20e+02	0.840	RPD
8	DUP	S95T003656	0	Z	@GEA-01	CS13702E	SOLID	1.00		.29	0.290	% Ct. Error
9	SAMPLE	S95T003657	0	Z	@GEA-01	C060-02	SOLID	N/A	<	6.968e-03	7.000e-003	uCi/g
9	SAMPLE	S95T003657	0	Z	@GEA-01	C060-02E	SOLID	N/A		n/a	0.000	% Ct. Error
9	SAMPLE	S95T003657	0	Z	@GEA-01	CS13702	SOLID	N/A		1.345e+02	6.000e-003	uCi/g
9	SAMPLE	S95T003657	0	Z	@GEA-01	CS13702E	SOLID	N/A		.28	0.000	% Ct. Error
10	DUP	S95T003657	0	Z	@GEA-01	C060-02	SOLID	<6.97e-3		<8.28e-3		RPD
10	DUP	S95T003657	0	Z	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
10	DUP	S95T003657	0	Z	@GEA-01	CS13702	SOLID	1.34e+02		1.34e+02	0.000	RPD
10	DUP	S95T003657	0	Z	@GEA-01	CS13702E	SOLID	1.00		.28	0.280	% Ct. Error

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Worklist Report for Worklist# 4575

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit

Final page for worklist# 4575

Analyst Signature Date

Analyst Signature Date

R J Machelor 1/4/96
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 4575

Analyst: KTKNT **Instrument:** GEA00 #3 **Book#** 144B52

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: BY104 GEA S95T003654,55,56,57. SS=2ML. RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S95T003654	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S95T003654	0	Z	@GEA-01	SOLID		
5	SAMPLE	S95T003655	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S95T003655	0	Z	@GEA-01	SOLID		
7	SAMPLE	S95T003656	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
8	DUP	S95T003656	0	Z	@GEA-01	SOLID		
9	SAMPLE	S95T003657	0	Z	@GEA-01	SOLID	95000180	BY104 ROTARY
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
10	DUP	S95T003657	0	Z	@GEA-01	SOLID		

Final page for worklist # 4575

Kim Thomas 12-30-95
Analyst Signature **Date**

[signature] 1/2/96
Analyst Signature **Date**
SE Hogan 1/3/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 07:21:02.13                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4575
Sample ID:               WL4575-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3384.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.35 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 06:30:13.86
Decayed to:              30-DEC-1995 06:30:13.86
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: Raymond

Verified by: Bachelor 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.65*	22752	1.60	1323.48	1316	15	1.5		CS-137	25.7
0	1173.24	13306	1.91	2346.75	2339	19	1.9		CO-60	21.0
0	1332.48	11799	2.02	2665.33	2655	19	1.9		CO-60	20.6
0	1460.85*	21	2.00	2922.18	2914	17	141.6		K-40	0.368
0	1620.95	19	6.58	3242.57	3234	19	92.4			

Summary of Nuclide Activity
Sample ID : WL4575-STD

Acquisition date : 30-DEC-1995 06:30:13

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~3.682E-01~~	~~3.682E-01~~	~~5.214E-01~~	~~141.62~~	BKG
CO-60	5.27Y	1.000	2.081E+01	2.081E+01	0.028E+01	1.35	
CS-137	30.00Y	1.000	2.572E+01	2.572E+01	0.037E+01	1.45	
		Total Activity :	4.690E+01	4.690E+01			
		Grand Total Activity :	4.690E+01	4.690E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL4575-STD
Acquisition date : 30-DEC-1995 06:30:13

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1085.	477.59	1.0850E+00
NA-22	74.	1274.53	6.7746E-02
NA-24	23.	1368.55	4.0871E-02
SC-46	513.	1120.55	1.5961E-01
CR-51	1064.	320.08	8.0854E-01
MN-54	650.	834.83	1.3944E-01
CO-56	659.	846.76	1.4217E-01
CO-57	1191.	122.06	5.9726E-02
CO-58	565.	810.78	1.2739E-01
FE-59	658.	1099.25	3.1445E-01
ZN-65	547.	1115.55	3.2374E-01
SE-75	1307.	264.66	1.3426E-01
KR-85	793.	514.00	2.3460E+01
SR-85	793.	514.01	1.0605E-01
Y-88	9.	1836.06	3.1436E-02
Y-90	17.	1760.70	1.4484E-01
Y-91	163.	1204.67	3.1878E+01
NB-94	683.	871.09	1.4832E-01
NB-95	500.	765.78	1.1380E-01
ZR-95	524.	756.73	2.1114E-01
RU-103	836.	497.08	1.1182E-01
RURH-106	542.	621.93	1.9947E+00
AG-108m	499.	722.94	1.1888E-01
CD-109	1073.	88.03	1.8773E+00
AG-110M	835.	657.76	1.3613E-01
SN-113	1067.	391.69	1.4852E-01
TE-123m	1233.	159.00	6.2527E-02
SB-124	538.	602.73	9.8215E-02
SB-125	1136.	427.89	3.5775E-01
TE-125m	1078.	109.27	1.8502E+01
I-129	955.	39.60	0.0000E+00
I-131	1073.	364.48	1.1132E-01
XE-131m	1196.	163.93	2.6781E+00
BA-133	1061.	356.02	1.4217E-01
CS-134	567.	604.70	1.0122E-01
CS-136	598.	818.51	1.3196E-01
CS-138	17.	1435.86	7.6656E-02
CE-139	1233.	165.85	6.7049E-02
BA-140	695.	537.31	4.0582E-01
LA-140	19.	1596.21	4.3564E-02
CE-141	1257.	145.44	1.0718E-01
CE-144	1203.	133.51	4.5433E-01
CEPR-144	1203.	133.51	9.0780E-01
EU-152	24.	1408.01	1.9751E-01
EU-154	74.	1274.51	1.9672E-01
EU-155	991.	86.54	2.0451E-01
HF-181	990.	482.18	1.3433E-01
TA-182	966.	67.75	3.0344E-01
HG-203	1105.	279.20	9.2076E-02
BI-207	543.	569.70	9.3944E-02
TL-208	1182.	277.36	1.2233E+00

Sample ID : WL4575-STD Acquisition date : 30-DEC-1995 06:30:13

WHC-SD-WM-DP-164, REV.1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PB-210	953.	46.50	0.0000E+00
BI-212	506.	727.18	1.6426E+00
PB-212	1453.	238.63	1.7608E-01
BI-214	577.	609.31	2.2404E-01
PB-214	1108.	351.92	4.4558E-01
RA-224	1442.	240.99	1.9479E+00
RA-226	1390.	186.10	1.7456E+00
AC-228	784.	911.21	6.2016E-01
TH-228	1030.	84.37	5.6638E+00
TH-229	1100.	88.47	2.7553E-01
U-232	990.	57.78	1.4725E+02
PA-233	1098.	312.17	2.1041E-01
PA-234M	607.	1001.03	2.6681E-01
TH-234	925.	63.29	3.6160E+00
U-235	1374.	185.71	1.0547E-01
NP-237	990.	86.48	5.4163E-01
U-237	961.	59.54	6.7783E-01
NP-238	629.	984.45	5.7165E-01
NP-239	1107.	106.12	2.3792E-01
PU-239	1194.	129.30	7.8702E+02
AM-241	961.	59.54	6.5016E-01
AM-243	1009.	74.67	1.5661E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 13:07:36.70                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-164, REV. 1

```
Worklist #:            4575
Sample ID:             WL4575-BLK
Sample Size:           2.00000E-03 L
Dilution Factor:       1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:           GEA3
File Number:           NI3AC:1.cnf
Geometry:              42
Count Time:            0 00:50:00.00 sec
Real Time:             0 00:50:00.45 sec
Dead Time:             0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:     30-DEC-1995 07:32:13.04
Decayed to:            30-DEC-1995 07:32:13.04
Standard Deviations:   2
Analysis Library:      ENVGEA
Analyst:               VR
Background Subtract:   DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

Removed by: Raymond

Verified by: Bachelor 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	609.08*	21	0.86	1218.35	1214	10106.7				
0	661.56*	24	1.29	1323.30	1319	11116.2			CS-137	1.345E-02

Summary of Nuclide Activity
Sample ID : WL4575-BLK

Acquisition date : 30-DEC-1995 07:32:13

Total number of lines in spectrum	2	WHC-SD-WM-DP-164, REV. 1
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~1.345E-02~~	~~1.345E-02~~	~~1.563E-02~~	~~116.17~~	BKG
			---	---			
Total Activity :			1.345E-02	1.345E-02			
Grand Total Activity :			1.345E-02	1.345E-02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL4575-BLK Acquisition date : 30-DEC-1995 07:32:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	38.	477.59	1.0122E-01
NA-22	11.	1274.53	1.2892E-02
NA-24	10.	1368.55	1.3342E-02
K-40	137.	1460.75	4.7892E-01
SC-46	28.	1120.55	1.8517E-02
CR-51	61.	320.08	9.6421E-02
MN-54	20.	834.83	1.2261E-02
CO-56	21.	846.76	1.2758E-02
CO-57	64.	122.06	6.9001E-03
CO-58	12.	810.78	9.3600E-03
FE-59	10.	1099.25	1.8955E-02
CO-60	14.	1332.50	1.4977E-02
ZN-65	16.	1115.55	2.7871E-02
SE-75	70.	264.66	1.5537E-02
KR-85	48.	514.00	2.8886E+00
SR-85	48.	514.01	1.3030E-02
Y-88	1.	1836.06	5.1861E-03
Y-90	9.	1760.70	5.3597E-02
Y-91	12.	1204.67	4.2584E+00
NB-94	16.	871.09	1.1300E-02
NB-95	22.	765.78	1.2061E-02
ZR-95	14.	756.73	1.6952E-02
RU-103	36.	497.08	1.1610E-02
RURH-106	29.	621.93	2.3014E-01
AG-108m	21.	722.94	1.2251E-02
CD-109	67.	88.03	2.3463E-01
AG-110M	17.	657.76	9.7057E-03
SN-113	50.	391.69	1.6150E-02
TE-123m	83.	159.00	8.1316E-03
SB-124	25.	602.73	1.0494E-02
SB-125	45.	427.89	3.5489E-02
TE-125m	77.	109.27	2.4651E+00
I-129	57.	39.60	0.0000E+00
I-131	42.	364.48	1.1064E-02
XE-131m	93.	163.93	3.7394E-01
BA-133	63.	356.02	1.7338E-02
CS-134	20.	604.70	9.4344E-03
CS-136	18.	818.51	1.1562E-02
CS-138	10.	1435.86	2.9159E-02
CE-139	91.	165.85	9.0823E-03
BA-140	31.	537.31	4.3097E-02
LA-140	8.	1596.21	1.3570E-02
CE-141	95.	145.44	1.4728E-02
CE-144	78.	133.51	5.7958E-02
CEPR-144	78.	133.51	1.1583E-01
EU-152	7.	1408.01	5.3803E-02
EU-154	11.	1274.51	3.7663E-02
EU-155	67.	86.54	2.6673E-02
HF-181	23.	482.18	1.0192E-02
TA-182	66.	67.75	3.9517E-02
HG-203	67.	279.20	1.1313E-02

Sample ID : WL4575-BLK Acquisition date : 30-DEC-1995 07:32:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	30.	569.70	1.1057E-02
TL-208	65.	277.36	1.4394E-01
PB-210	61.	46.50	0.0000E+00
BI-212	29.	727.18	1.9786E-01
PB-212	104.	238.63	2.3581E-02
BI-214	66.	609.31	3.7931E-02
PB-214	93.	351.92	6.4398E-02
RA-224	80.	240.99	2.2924E-01
RA-226	83.	186.10	2.1389E-01
AC-228	30.	911.21	6.0184E-02
TH-228	74.	84.37	7.5738E-01
TH-229	68.	88.47	3.4205E-02
U-232	55.	57.78	1.7347E+01
PA-233	59.	312.17	2.4393E-02
PA-234M	18.	1001.03	2.2827E-02
TH-234	66.	63.29	4.8362E-01
U-235	88.	185.71	1.3361E-02
NP-237	68.	86.48	7.1133E-02
U-237	65.	59.54	8.7864E-02
NP-238	14.	984.45	4.2627E-02
NP-239	69.	106.12	2.9763E-02
PU-239	88.	129.30	1.0697E+02
AM-241	65.	59.54	8.4289E-02
AM-243	85.	74.67	2.2702E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 13:10:08.11                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4575
Sample ID:               S95T3654-SAM
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             NI3AC:~~1.cnf~~ 3938#7
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:52.18 sec
Dead Time:               1.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 09:33:23.76
Decayed to:              30-DEC-1995 09:33:23.76
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: Raymond

Verified by: B Bachelor 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.62*	423236	1.57	1323.42	1315	17	0.3		CS-137	239.

Sample ID : S95T3654-SAM Acquisition date : 30-DEC-1995 09:33:23

Total number of lines in spectrum	1	WHC-SD-WM-DP-164, REV. 1
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.392E+02	2.392E+02	0.008E+02	0.31	
		Total Activity :	2.392E+02	2.392E+02			
		Grand Total Activity :	2.392E+02	2.392E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T3654-SAM Acquisition date : 30-DEC-1995 09:33:23

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	12688.	477.59	1.8554E+00
NA-22	39.	1274.53	2.4613E-02
NA-24	6.	1368.55	1.0374E-02
K-40	127.	1460.75	4.6173E-01
SC-46	52.	1120.55	2.5284E-02
CR-51	10022.	320.08	1.2410E+00
MN-54	107.	834.83	2.8261E-02
CO-56	103.	846.76	2.8134E-02
CO-57	10560.	122.06	8.8920E-02
CO-58	116.	810.78	2.8876E-02
FE-59	50.	1099.25	4.3290E-02
CO-60	30.	1332.50	2.2249E-02
ZN-65	46.	1115.55	4.7160E-02
SE-75	11022.	264.66	1.9497E-01
KR-85	6368.	514.00	3.3237E+01
SR-85	6368.	514.01	1.5029E-01
Y-88	1.	1836.06	5.2460E-03
Y-90	4.	1760.70	3.6468E-02
Y-91	38.	1204.67	7.7125E+00
NB-94	103.	871.09	2.8811E-02
NB-95	153.	765.78	3.1428E-02
ZR-95	144.	756.73	5.5416E-02
RU-103	7817.	497.08	1.7100E-01
RURH-106	2219.	621.93	2.0183E+00
AG-108m	197.	722.94	3.7385E-02
CD-109	9170.	88.03	2.7439E+00
AG-110M	7649.	657.76	2.0600E-01
SN-113	10840.	391.69	2.3667E-01
TE-123m	10942.	159.00	9.3120E-02
SB-124	2458.	602.73	1.0492E-01
SB-125	12755.	427.89	5.9932E-01
TE-125m	9573.	109.27	2.7565E+01
I-129	8604.	39.60	0.0000E+00
I-131	10199.	364.48	1.7164E-01
XE-131m	10789.	163.93	4.0219E+00
BA-133	10154.	356.02	2.1990E-01
CS-134	2353.	604.70	1.0312E-01
CS-136	138.	818.51	3.1667E-02
CS-138	4.	1435.86	1.8583E-02
CE-139	10840.	165.85	9.9394E-02
BA-140	4553.	537.31	5.1933E-01
LA-140	9.	1596.21	1.4441E-02
CE-141	10744.	145.44	1.5667E-01
CE-144	10784.	133.51	6.8016E-01
CEPR-144	10784.	133.51	1.3591E+00
EU-152	8.	1408.01	5.7518E-02
EU-154	39.	1274.51	7.1436E-02
EU-155	9240.	86.54	3.1230E-01
HF-181	10080.	482.18	2.1427E-01
TA-182	8572.	67.75	4.5186E-01
HG-203	10704.	279.20	1.4328E-01

Sample ID : S95T3654-SAM Acquisition date : 30-DEC-1995 09:33:23

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2751.	569.70	1.0573E-01
TL-208	10697.	277.36	1.8399E+00
PB-210	8360.	46.50	0.0000E+00
BI-212	173.	727.18	4.8073E-01
PB-212	12620.	238.63	2.5946E-01
BI-214	2285.	609.31	2.2284E-01
PB-214	10174.	351.92	6.8009E-01
RA-224	12592.	240.99	2.8777E+00
RA-226	14333.	186.10	2.8028E+00
AC-228	102.	911.21	1.1169E-01
TH-228	9106.	84.37	8.4208E+00
TH-229	9177.	88.47	3.9784E-01
U-232	8618.	57.78	2.1728E+02
PA-233	10013.	312.17	3.1775E-01
PA-234M	66.	1001.03	4.4017E-02
TH-234	8662.	63.29	5.5317E+00
U-235	14186.	185.71	1.6947E-01
NP-237	9251.	86.48	8.2773E-01
U-237	8389.	59.54	1.0016E+00
NP-238	62.	984.45	8.9609E-02
NP-239	9600.	106.12	3.5029E-01
PU-239	10664.	129.30	1.1762E+03
AM-241	8389.	59.54	9.6070E-01
AM-243	8861.	74.67	2.3206E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 13:15:02.33                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-164, REV. I

```
Worklist #:            4575
Sample ID:             S95T3654-DUP
Sample Size:           2.00000E-03 L
Dilution Factor:       1.00000E+00
```

Removed by: Raymond

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:           GEA3
File Number:           NI3AC:~~1.enf~~ 3g3388
Geometry:              42
Count Time:            0 00:50:00.00 sec
Real Time:             0 00:50:55.44 sec
Dead Time:             1.8%
```

Verified by: BJ Machelor 1/2/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:     30-DEC-1995 10:31:13.11
Decayed to:            30-DEC-1995 10:31:13.11
Standard Deviations:   2
Analysis Library:      ENVGEA
Analyst:               VR
Background Subtract:   DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.62*	448476	1.55	1323.42	1315	17	0.3		CS-137	253.
0	1332.69	14	1.47	2665.75	2661	10	80.2			

Sample ID : S95T3654-DUP Acquisition date : 30-DEC-1995 10:31:13

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.534E+02	2.534E+02	0.008E+02	0.30	
		Total Activity :	2.534E+02	2.534E+02			
		Grand Total Activity :	2.534E+02	2.534E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T3654-DUP Acquisition date : 30-DEC-1995 10:31:13

WHC-SD-WM-DP-164, REV.)

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	13441.	477.59	1.9097E+00
NA-22	58.	1274.53	2.9875E-02
NA-24	8.	1368.55	1.2326E-02
K-40	110.	1460.75	4.2892E-01
SC-46	70.	1120.55	2.9404E-02
CR-51	10472.	320.08	1.2685E+00
MN-54	131.	834.83	3.1331E-02
CO-56	143.	846.76	3.3145E-02
CO-57	11188.	122.06	9.1526E-02
CO-58	120.	810.78	2.9411E-02
FE-59	58.	1099.25	4.6801E-02
CO-60	20.	1332.50	1.8038E-02
ZN-65	50.	1115.55	4.8733E-02
SE-75	11850.	264.66	2.0216E-01
KR-85	6731.	514.00	3.4171E+01
SR-85	6730.	514.01	1.5450E-01
Y-88	3.	1836.06	9.0519E-03
Y-90	9.	1760.70	5.3760E-02
Y-91	27.	1204.67	6.4458E+00
NB-94	115.	871.09	3.0445E-02
NB-95	154.	765.78	3.1590E-02
ZR-95	174.	756.73	6.0822E-02
RU-103	8322.	497.08	1.7644E-01
RURH-106	2410.	621.93	2.1033E+00
AG-108m	216.	722.94	3.9061E-02
CD-109	9894.	88.03	2.8501E+00
AG-110M	8381.	657.76	2.1562E-01
SN-113	11561.	391.69	2.4442E-01
TE-123m	11405.	159.00	9.5068E-02
SB-124	2536.	602.73	1.0656E-01
SB-125	13521.	427.89	6.1706E-01
TE-125m	10320.	109.27	2.8620E+01
I-129	8962.	39.60	0.0000E+00
I-131	10858.	364.48	1.7711E-01
XE-131m	11650.	163.93	4.1792E+00
BA-133	10731.	356.02	2.2606E-01
CS-134	2494.	604.70	1.0617E-01
CS-136	139.	818.51	3.1845E-02
CS-138	9.	1435.86	2.8239E-02
CE-139	11604.	165.85	1.0284E-01
BA-140	4769.	537.31	5.3151E-01
LA-140	8.	1596.21	1.3572E-02
CE-141	11581.	145.44	1.6266E-01
CE-144	11466.	133.51	7.0134E-01
CEPR-144	11466.	133.51	1.4014E+00
EU-152	11.	1408.01	6.8711E-02
EU-154	58.	1274.51	8.6735E-02
EU-155	9937.	86.54	3.2388E-01
HF-181	10885.	482.18	2.2265E-01
TA-182	9152.	67.75	4.6688E-01
HG-203	11164.	279.20	1.4632E-01

Sample ID : S95T3654-DUP Acquisition date : 30-DEC-1995 10:31:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2905.	569.70	1.0865E-01
TL-208	11317.	277.36	1.8925E+00
PB-210	9007.	46.50	0.0000E+00
BI-212	189.	727.18	5.0206E-01
PB-212	13169.	238.63	2.6504E-01
BI-214	2458.	609.31	2.3111E-01
PB-214	10855.	351.92	7.0288E-01
RA-224	13020.	240.99	2.9262E+00
RA-226	15249.	186.10	2.8909E+00
AC-228	103.	911.21	1.1240E-01
TH-228	9713.	84.37	8.6970E+00
TH-229	9883.	88.47	4.1285E-01
U-232	8939.	57.78	2.2129E+02
PA-233	10748.	312.17	3.2921E-01
PA-234M	79.	1001.03	4.8076E-02
TH-234	9041.	63.29	5.6515E+00
U-235	15179.	185.71	1.7530E-01
NP-237	9934.	86.48	8.5774E-01
U-237	8984.	59.54	1.0365E+00
NP-238	79.	984.45	1.0144E-01
NP-239	10173.	106.12	3.6058E-01
PU-239	11640.	129.30	1.2288E+03
AM-241	8984.	59.54	9.9416E-01
AM-243	9235.	74.67	2.3691E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 13:17:40.58                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-164, REV. 1

```
Worklist #:              4575
Sample ID:               S95T3655-SAM
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: Raymond

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             NI3AC:~~1.cnf~~ 3g3389
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:58.09 sec
Dead Time:               1.9%
```

Verified by: B Bachelor 1/2/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 11:26:32.59
Decayed to:              30-DEC-1995 11:26:32.59
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.62*	469683	1.56	1323.42	1315	17	0.3		CS-137	265.
0	1332.52	24	2.86	2665.41	2661	9	56.1			
0	1460.80*	19	1.47	2922.08	2914	16	147.9		K-40	0.165

Sample ID : S95T3655-SAM
Acquisition date : 30-DEC-1995 11:26:32

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.645E-01~~	~~1.645E-01~~	~~2.434E-01~~	~~147.92~~	BKG
CS-137	30.00Y	1.000	2.654E+02	2.654E+02	0.008E+02	0.30	
		Total Activity :	2.656E+02	2.656E+02			
		Grand Total Activity :	2.656E+02	2.656E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T3655-SAM Acquisition date : 30-DEC-1995 11:26:32

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	14358.	477.59	1.9738E+00
NA-22	49.	1274.53	2.7522E-02
NA-24	5.	1368.55	9.2966E-03
SC-46	69.	1120.55	2.9341E-02
CR-51	11204.	320.08	1.3121E+00
MN-54	139.	834.83	3.2224E-02
CO-56	171.	846.76	3.6258E-02
CO-57	11752.	122.06	9.3806E-02
CO-58	163.	810.78	3.4260E-02
FE-59	53.	1099.25	4.4808E-02
CO-60	35.	1332.50	2.3917E-02
ZN-65	64.	1115.55	5.5344E-02
SE-75	12329.	264.66	2.0620E-01
KR-85	6895.	514.00	3.4584E+01
SR-85	6894.	514.01	1.5637E-01
Y-88	1.	1836.06	5.2460E-03
Y-90	8.	1760.70	5.0742E-02
Y-91	38.	1204.67	7.7319E+00
NB-94	125.	871.09	3.1731E-02
NB-95	200.	765.78	3.5974E-02
ZR-95	192.	756.73	6.3922E-02
RU-103	8697.	497.08	1.8037E-01
RURH-106	2434.	621.93	2.1138E+00
AG-108m	221.	722.94	3.9553E-02
CD-109	10259.	88.03	2.9022E+00
AG-110M	8752.	657.76	2.2035E-01
SN-113	12375.	391.69	2.5286E-01
TE-123m	12171.	159.00	9.8211E-02
SB-124	2606.	602.73	1.0803E-01
SB-125	14314.	427.89	6.3490E-01
TE-125m	10896.	109.27	2.9408E+01
I-129	9413.	39.60	0.0000E+00
I-131	11408.	364.48	1.8154E-01
XE-131m	12140.	163.93	4.2662E+00
BA-133	11280.	356.02	2.3177E-01
CS-134	2601.	604.70	1.0842E-01
CS-136	149.	818.51	3.2929E-02
CS-138	6.	1435.86	2.3133E-02
CE-139	12229.	165.85	1.0557E-01
BA-140	4978.	537.31	5.4304E-01
LA-140	5.	1596.21	1.1034E-02
CE-141	11773.	145.44	1.6400E-01
CE-144	11988.	133.51	7.1712E-01
CEPR-144	11988.	133.51	1.4330E+00
EU-152	6.	1408.01	4.9456E-02
EU-154	49.	1274.51	8.0057E-02
EU-155	10257.	86.54	3.2905E-01
HF-181	11373.	482.18	2.2759E-01
TA-182	9454.	67.75	4.7453E-01
HG-203	11700.	279.20	1.4980E-01
BI-207	3027.	569.70	1.1092E-01

Sample ID : S95T3655-SAM Acquisition date : 30-DEC-1995 11:26:32

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	11748.	277.36	1.9283E+00
PB-210	9269.	46.50	0.0000E+00
BI-212	219.	727.18	5.4043E-01
PB-212	13810.	238.63	2.7142E-01
BI-214	2593.	609.31	2.3737E-01
PB-214	11266.	351.92	7.1637E-01
RA-224	13700.	240.99	3.0016E+00
RA-226	16003.	186.10	2.9616E+00
AC-228	108.	911.21	1.1536E-01
TH-228	10067.	84.37	8.8539E+00
TH-229	10182.	88.47	4.1905E-01
U-232	9295.	57.78	2.2565E+02
PA-233	11209.	312.17	3.3619E-01
PA-234M	64.	1001.03	4.3298E-02
TH-234	9524.	63.29	5.8006E+00
U-235	15835.	185.71	1.7905E-01
NP-237	10246.	86.48	8.7112E-01
U-237	9310.	59.54	1.0551E+00
NP-238	75.	984.45	9.8643E-02
NP-239	10666.	106.12	3.6923E-01
PU-239	11958.	129.30	1.2455E+03
AM-241	9310.	59.54	1.0120E+00
AM-243	9765.	74.67	2.4362E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 14:11:26.06                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-164, REV. 1

```
Worklist #:              4575
Sample ID:               S95T3655-DUP
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: Raymond

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3390.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:52.57 sec
Dead Time:               1.7%
```

Verified by: B J Machelor 1/2/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 13:19:56.06
Decayed to:              30-DEC-1995 13:19:56.06
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.63*	426037	1.56	1323.43	1315	17	0.3		CS-137	241.
0	1322.87	44	1.88	2646.10	2641	11	57.3			

Sample ID : S95T3655-DUP
Acquisition date : 30-DEC-1995 13:19:56

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	2	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.408E+02	2.408E+02	0.008E+02	0.31	
		Total Activity :	2.408E+02	2.408E+02			
		Grand Total Activity :	2.408E+02	2.408E+02			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : S95T3655-DUP Acquisition date : 30-DEC-1995 13:19:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	12960.	477.59	1.8752E+00
NA-22	48.	1274.53	2.7114E-02
NA-24	6.	1368.55	1.0222E-02
K-40	128.	1460.75	4.6292E-01
SC-46	59.	1120.55	2.6998E-02
CR-51	9992.	320.08	1.2391E+00
MN-54	122.	834.83	3.0250E-02
CO-56	122.	846.76	3.0564E-02
CO-57	10663.	122.06	8.9355E-02
CO-58	123.	810.78	2.9687E-02
FE-59	44.	1099.25	4.0668E-02
CO-60	38.	1332.50	2.4969E-02
ZN-65	48.	1115.55	4.7810E-02
SE-75	11242.	264.66	1.9691E-01
KR-85	6560.	514.00	3.3733E+01
SR-85	6559.	514.01	1.5252E-01
Y-88	2.	1836.06	7.4190E-03
Y-90	10.	1760.70	5.5265E-02
Y-91	31.	1204.67	6.9241E+00
NB-94	112.	871.09	2.9980E-02
NB-95	141.	765.78	3.0211E-02
ZR-95	129.	756.73	5.2409E-02
RU-103	7943.	497.08	1.7238E-01
RURH-106	2322.	621.93	2.0646E+00
AG-108m	206.	722.94	3.8145E-02
CD-109	9034.	88.03	2.7235E+00
AG-110M	7838.	657.76	2.0852E-01
SN-113	10991.	391.69	2.3831E-01
TE-123m	10809.	159.00	9.2554E-02
SB-124	2424.	602.73	1.0419E-01
SB-125	12961.	427.89	6.0413E-01
TE-125m	9762.	109.27	2.7836E+01
I-129	8565.	39.60	0.0000E+00
I-131	10226.	364.48	1.7188E-01
XE-131m	10798.	163.93	4.0236E+00
BA-133	10142.	356.02	2.1977E-01
CS-134	2319.	604.70	1.0238E-01
CS-136	136.	818.51	3.1434E-02
CS-138	3.	1435.86	1.7273E-02
CE-139	10986.	165.85	1.0006E-01
BA-140	4528.	537.31	5.1789E-01
LA-140	2.	1596.21	6.9784E-03
CE-141	10894.	145.44	1.5776E-01
CE-144	11066.	133.51	6.8901E-01
CEPR-144	11064.	133.51	1.3767E+00
EU-152	5.	1408.01	4.4711E-02
EU-154	48.	1274.51	7.8641E-02
EU-155	9235.	86.54	3.1222E-01
HF-181	10286.	482.18	2.1644E-01
TA-182	8661.	67.75	4.5420E-01
HG-203	10530.	279.20	1.4211E-01

Sample ID : S95T3655-DUP Acquisition date : 30-DEC-1995 13:19:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	2752.	569.70	1.0575E-01
TL-208	10664.	277.36	1.8371E+00
PB-210	8474.	46.50	0.0000E+00
BI-212	189.	727.18	5.0247E-01
PB-212	12484.	238.63	2.5806E-01
BI-214	2410.	609.31	2.2887E-01
PB-214	10276.	351.92	6.8352E-01
RA-224	12107.	240.99	2.8217E+00
RA-226	14415.	186.10	2.8108E+00
AC-228	86.	911.21	1.0286E-01
TH-228	9205.	84.37	8.4662E+00
TH-229	9044.	88.47	3.9495E-01
U-232	8289.	57.78	2.1309E+02
PA-233	10064.	312.17	3.1857E-01
PA-234M	74.	1001.03	4.6606E-02
TH-234	8358.	63.29	5.4339E+00
U-235	14260.	185.71	1.6991E-01
NP-237	9244.	86.48	8.2739E-01
U-237	8218.	59.54	9.9131E-01
NP-238	58.	984.45	8.6923E-02
NP-239	9717.	106.12	3.5240E-01
PU-239	10989.	129.30	1.1940E+03
AM-241	8218.	59.54	9.5082E-01
AM-243	8794.	74.67	2.3118E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 15:06:38.69                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4575
Sample ID:               S95T3656-SAM
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3391.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:00.98 sec
Dead Time:               2.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 14:14:59.24
Decayed to:              30-DEC-1995 14:14:59.24
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: Raymond

Verified by: B Machelor 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.63*	492029	1.57	1323.43	1315	17	0.3		CS-137	278.
0	1323.37	38	2.25	2647.11	2644	9	59.1			
0	1332.63	24	1.84	2665.64	2659	14	52.5			

Sample ID : S95T3656-SAM
Acquisition date : 30-DEC-1995 14:14:59

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.781E+02	2.781E+02	0.008E+02	0.29	
		Total Activity :	2.781E+02	2.781E+02			
		Grand Total Activity :	2.781E+02	2.781E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T3656-SAM
Acquisition date : 30-DEC-1995 14:14:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	14982.	477.59	2.0162E+00
NA-22	39.	1274.53	2.4632E-02
NA-24	10.	1368.55	1.3153E-02
K-40	121.	1460.75	4.5067E-01
SC-46	75.	1120.55	3.0577E-02
CR-51	11572.	320.08	1.3335E+00
MN-54	149.	834.83	3.3316E-02
CO-56	148.	846.76	3.3658E-02
CO-57	12217.	122.06	9.5645E-02
CO-58	159.	810.78	3.3786E-02
FE-59	66.	1099.25	4.9931E-02
CO-60	27.	1332.50	2.1007E-02
ZN-65	58.	1115.55	5.2533E-02
SE-75	13057.	264.66	2.1220E-01
KR-85	7393.	514.00	3.5811E+01
SR-85	7392.	514.01	1.6192E-01
Y-88	5.	1836.06	1.1526E-02
Y-90	4.	1760.70	3.3830E-02
Y-91	33.	1204.67	7.2059E+00
NB-94	156.	871.09	3.5475E-02
NB-95	192.	765.78	3.5232E-02
ZR-95	177.	756.73	6.1341E-02
RU-103	9175.	497.08	1.8526E-01
RURH-106	2537.	621.93	2.1582E+00
AG-108m	259.	722.94	4.2814E-02
CD-109	10711.	88.03	2.9654E+00
AG-110M	9133.	657.76	2.2509E-01
SN-113	12738.	391.69	2.5656E-01
TE-123m	12713.	159.00	1.0037E-01
SB-124	2752.	602.73	1.1101E-01
SB-125	15077.	427.89	6.5161E-01
TE-125m	11208.	109.27	2.9826E+01
I-129	9748.	39.60	0.0000E+00
I-131	11982.	364.48	1.8605E-01
XE-131m	12642.	163.93	4.3536E+00
BA-133	11909.	356.02	2.3814E-01
CS-134	2715.	604.70	1.1078E-01
CS-136	162.	818.51	3.4366E-02
CS-138	7.	1435.86	2.5403E-02
CE-139	12760.	165.85	1.0784E-01
BA-140	5225.	537.31	5.5634E-01
LA-140	6.	1596.21	1.2087E-02
CE-141	12711.	145.44	1.7041E-01
CE-144	12588.	133.51	7.3484E-01
CEPR-144	12589.	133.51	1.4684E+00
EU-152	7.	1408.01	5.3474E-02
EU-154	40.	1274.51	7.1746E-02
EU-155	10680.	86.54	3.3577E-01
HF-181	11939.	482.18	2.3318E-01
TA-182	9955.	67.75	4.8693E-01
HG-203	12321.	279.20	1.5372E-01

Sample ID : S95T3656-SAM Acquisition date : 30-DEC-1995 14:14:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	3158.	569.70	1.1329E-01
TL-208	12361.	277.36	1.9779E+00
PB-210	9751.	46.50	0.0000E+00
BI-212	224.	727.18	5.4661E-01
PB-212	14645.	238.63	2.7950E-01
BI-214	2664.	609.31	2.4059E-01
PB-214	11888.	351.92	7.3625E-01
RA-224	14575.	240.99	3.0960E+00
RA-226	16733.	186.10	3.0284E+00
AC-228	118.	911.21	1.2030E-01
TH-228	10625.	84.37	9.0959E+00
TH-229	10694.	88.47	4.2945E-01
U-232	9734.	57.78	2.3092E+02
PA-233	11637.	312.17	3.4255E-01
PA-234M	80.	1001.03	4.8352E-02
TH-234	9817.	63.29	5.8891E+00
U-235	16503.	185.71	1.8279E-01
NP-237	10681.	86.48	8.8940E-01
U-237	9837.	59.54	1.0846E+00
NP-238	81.	984.45	1.0264E-01
NP-239	11031.	106.12	3.7549E-01
PU-239	12373.	129.30	1.2669E+03
AM-241	9837.	59.54	1.0403E+00
AM-243	10198.	74.67	2.4896E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 16:41:56.46                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4575
Sample ID:               S95T3656-DUP
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3393.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:00.22 sec
Dead Time:               2.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 15:50:17.79
Decayed to:              30-DEC-1995 15:50:17.79
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: Raymond

Verified by: B Bachelor 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	476.00	1022	2.76	952.24	948	9	45.1			
0	661.62*	486392	1.56	1323.42	1315	17	0.3		CS-137	275.
0	968.48*	47	1.82	1937.14	1932	10	66.2			
0	1323.08	28	1.76	2646.53	2642	11	100.9			

Sample ID : S95T3656-DUP
Acquisition date : 30-DEC-1995 15:50:17
WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	4	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	2	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.749E+02	2.749E+02	0.008E+02	0.29	
		Total Activity :	2.749E+02	2.749E+02			
		Grand Total Activity :	2.749E+02	2.749E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T3656-DUP
Acquisition date : 30-DEC-1995 15:50:17

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	14697.	477.59	1.9970E+00
NA-22	41.	1274.53	2.4994E-02
NA-24	10.	1368.55	1.3158E-02
K-40	126.	1460.75	4.5986E-01
SC-46	56.	1120.55	2.6313E-02
CR-51	11499.	320.08	1.3293E+00
MN-54	141.	834.83	3.2413E-02
CO-56	134.	846.76	3.2101E-02
CO-57	12123.	122.06	9.5277E-02
CO-58	143.	810.78	3.2061E-02
FE-59	64.	1099.25	4.9206E-02
CO-60	27.	1332.50	2.1063E-02
ZN-65	44.	1115.55	4.5768E-02
SE-75	12813.	264.66	2.1022E-01
KR-85	7280.	514.00	3.5537E+01
SR-85	7280.	514.01	1.6069E-01
Y-88	8.	1836.06	1.4817E-02
Y-90	9.	1760.70	5.2819E-02
Y-91	34.	1204.67	7.2608E+00
NB-94	137.	871.09	3.3178E-02
NB-95	218.	765.78	3.7564E-02
ZR-95	199.	756.73	6.5056E-02
RU-103	8842.	497.08	1.8187E-01
RURH-106	2498.	621.93	2.1414E+00
AG-108m	234.	722.94	4.0711E-02
CD-109	10400.	88.03	2.9220E+00
AG-110M	9132.	657.76	2.2507E-01
SN-113	12509.	391.69	2.5423E-01
TE-123m	12431.	159.00	9.9253E-02
SB-124	2725.	602.73	1.1046E-01
SB-125	14824.	427.89	6.4612E-01
TE-125m	11298.	109.27	2.9945E+01
I-129	9631.	39.60	0.0000E+00
I-131	11738.	364.48	1.8414E-01
XE-131m	12640.	163.93	4.3531E+00
BA-133	11582.	356.02	2.3486E-01
CS-134	2702.	604.70	1.1051E-01
CS-136	151.	818.51	3.3186E-02
CS-138	7.	1435.86	2.4297E-02
CE-139	12637.	165.85	1.0732E-01
BA-140	5051.	537.31	5.4701E-01
LA-140	12.	1596.21	1.7019E-02
CE-141	12453.	145.44	1.6867E-01
CE-144	12499.	133.51	7.3224E-01
CEPR-144	12500.	133.51	1.4632E+00
EU-152	13.	1408.01	7.3322E-02
EU-154	40.	1274.51	7.2543E-02
EU-155	10394.	86.54	3.3124E-01
HF-181	11719.	482.18	2.3103E-01
TA-182	9721.	67.75	4.8120E-01
HG-203	12422.	279.20	1.5434E-01

Sample ID : S95T3656-DUP Acquisition date : 30-DEC-1995 15:50:17

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	3206.	569.70	1.1415E-01
TL-208	12352.	277.36	1.9772E+00
PB-210	9690.	46.50	0.0000E+00
BI-212	227.	727.18	5.4963E-01
PB-212	14310.	238.63	2.7629E-01
BI-214	2652.	609.31	2.4006E-01
PB-214	11545.	351.92	7.2546E-01
RA-224	14113.	240.99	3.0466E+00
RA-226	16564.	186.10	3.0131E+00
AC-228	115.	911.21	1.1863E-01
TH-228	10458.	84.37	9.0245E+00
TH-229	10477.	88.47	4.2507E-01
U-232	9554.	57.78	2.2877E+02
PA-233	11709.	312.17	3.4362E-01
PA-234M	78.	1001.03	4.7954E-02
TH-234	9834.	63.29	5.8941E+00
U-235	16454.	185.71	1.8252E-01
NP-237	10392.	86.48	8.7728E-01
U-237	9736.	59.54	1.0790E+00
NP-238	72.	984.45	9.6832E-02
NP-239	10976.	106.12	3.7455E-01
PU-239	12404.	129.30	1.2685E+03
AM-241	9736.	59.54	1.0349E+00
AM-243	10178.	74.67	2.4871E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 17:45:17.39                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4575
Sample ID:               S95T3657-SAM
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3394.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:06.57 sec
Dead Time:               2.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 16:53:32.63
Decayed to:              30-DEC-1995 16:53:32.63
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: A. Johnson 12-30-95

Verified by: B. Bachelor 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.62*	536335	1.56	1323.42	1315	17	0.3		CS-137	303.
0	1322.58	60	3.83	2645.53	2640	12	50.7			
0	1460.71*	15	1.84	2921.91	2913	17	165.1		K-40	0.129

Sample ID : S95T3657-SAM
Acquisition date : 30-DEC-1995 16:53:32

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.294E-01~~	~~1.294E-01~~	~~2.136E-01~~	~~165.12~~	BKG
CS-137	30.00Y	1.000	3.031E+02	3.031E+02	0.008E+02	0.28	
		Total Activity :	3.032E+02	3.032E+02			
		Grand Total Activity :	3.032E+02	3.032E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	16410.	477.59	2.1101E+00
NA-22	51.	1274.53	2.7967E-02
NA-24	9.	1368.55	1.2707E-02
SC-46	81.	1120.55	3.1680E-02
CR-51	12819.	320.08	1.4035E+00
MN-54	179.	834.83	3.6618E-02
CO-56	172.	846.76	3.6324E-02
CO-57	13408.	122.06	1.0020E-01
CO-58	187.	810.78	3.6652E-02
FE-59	71.	1099.25	5.1480E-02
CO-60	15.	1332.50	1.5734E-02
ZN-65	80.	1115.55	6.1821E-02
SE-75	14172.	264.66	2.2108E-01
KR-85	8183.	514.00	3.7677E+01
SR-85	8182.	514.01	1.7035E-01
Y-88	6.	1836.06	1.2663E-02
Y-90	6.	1760.70	4.3701E-02
Y-91	38.	1204.67	7.6611E+00
NB-94	146.	871.09	3.4227E-02
NB-95	232.	765.78	3.8753E-02
ZR-95	240.	756.73	7.1448E-02
RU-103	10040.	497.08	1.9380E-01
RURH-106	2847.	621.93	2.2860E+00
AG-108m	303.	722.94	4.6318E-02
CD-109	11490.	88.03	3.0714E+00
AG-110M	10157.	657.76	2.3737E-01
SN-113	14042.	391.69	2.6936E-01
TE-123m	13658.	159.00	1.0404E-01
SB-124	3047.	602.73	1.1681E-01
SB-125	16260.	427.89	6.7667E-01
TE-125m	12498.	109.27	3.1496E+01
I-129	10674.	39.60	0.0000E+00
I-131	13256.	364.48	1.9569E-01
XE-131m	13583.	163.93	4.5127E+00
BA-133	13026.	356.02	2.4906E-01
CS-134	2990.	604.70	1.1626E-01
CS-136	198.	818.51	3.7926E-02
CS-138	6.	1435.86	2.2808E-02
CE-139	13676.	165.85	1.1164E-01
BA-140	5706.	537.31	5.8138E-01
LA-140	5.	1596.21	1.0543E-02
CE-141	13785.	145.44	1.7747E-01
CE-144	13730.	133.51	7.6746E-01
CEPR-144	13730.	133.51	1.5335E+00
EU-152	14.	1408.01	7.6090E-02
EU-154	51.	1274.51	8.1411E-02
EU-155	11589.	86.54	3.4975E-01
HF-181	12996.	482.18	2.4329E-01
TA-182	10747.	67.75	5.0595E-01
HG-203	13422.	279.20	1.6044E-01
BI-207	3529.	569.70	1.1975E-01

Sample ID : S95T3657-SAM Acquisition date : 30-DEC-1995 16:53:32

WHC-SD-WM-DP-164, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	13544.	277.36	2.0704E+00
PB-210	10651.	46.50	0.0000E+00
BI-212	246.	727.18	5.7249E-01
PB-212	15691.	238.63	2.8931E-01
BI-214	2937.	609.31	2.5265E-01
PB-214	12868.	351.92	7.6670E-01
RA-224	15507.	240.99	3.1935E+00
RA-226	18317.	186.10	3.1685E+00
AC-228	154.	911.21	1.3766E-01
TH-228	11594.	84.37	9.5016E+00
TH-229	11482.	88.47	4.4500E-01
U-232	10571.	57.78	2.4063E+02
PA-233	12891.	312.17	3.6054E-01
PA-234M	90.	1001.03	5.1240E-02
TH-234	10714.	63.29	6.1523E+00
U-235	18175.	185.71	1.9182E-01
NP-237	11593.	86.48	9.2661E-01
U-237	10639.	59.54	1.1279E+00
NP-238	87.	984.45	1.0631E-01
NP-239	12153.	106.12	3.9412E-01
PU-239	13631.	129.30	1.3298E+03
AM-241	10639.	59.54	1.0819E+00
AM-243	11014.	74.67	2.5872E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   30-DEC-1995 19:07:46.21                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              4575
Sample ID:               S95T003657-DUP
Sample Size:             2.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3395.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:08.04 sec
Dead Time:               2.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-DEC-1995 18:15:58.24
Decayed to:              30-DEC-1995 18:15:58.24
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-164, REV. 1

Removed by: 12-30-95

Verified by: 1/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.63*	548353	1.56	1323.43	1315	17	0.3		CS-137	310.
0	1460.75*	16	2.47	2921.98	2913	16	159.8		K-40	0.143
0	1765.15*	9	0.90	3531.15	3527	12	99.3			

Summary of Nuclide Activity
Sample ID : S95T003657-DUP

Acquisition date : 30-DEC-1995 18:15:58

WHC-SD-WM-DP-164, REV. 1

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.433E-01~~	~~1.433E-01~~	~~2.290E-01~~	~~159.81~~	BKG
CS-137	30.00Y	1.000	3.099E+02	3.099E+02	0.009E+02	0.28	
		Total Activity :	3.100E+02	3.100E+02			
		Grand Total Activity :	3.100E+02	3.100E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T003657-DUP
Acquisition date : 30-DEC-1995 18:15:58

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	16630.	477.59	2.1242E+00
NA-22	52.	1274.53	2.8232E-02
NA-24	8.	1368.55	1.1849E-02
SC-46	80.	1120.55	3.1520E-02
CR-51	12945.	320.08	1.4104E+00
MN-54	175.	834.83	3.6190E-02
CO-56	175.	846.76	3.6649E-02
CO-57	13746.	122.06	1.0145E-01
CO-58	190.	810.78	3.6988E-02
FE-59	57.	1099.25	4.6218E-02
CO-60	22.	1332.50	1.9086E-02
ZN-65	69.	1115.55	5.7437E-02
SE-75	14436.	264.66	2.2313E-01
KR-85	8262.	514.00	3.7859E+01
SR-85	8260.	514.01	1.7117E-01
Y-88	2.	1836.06	7.4190E-03
Y-90	5.	1760.70	3.9929E-02
Y-91	40.	1204.67	7.8995E+00
NB-94	150.	871.09	3.4710E-02
NB-95	238.	765.78	3.9287E-02
ZR-95	238.	756.73	7.1149E-02
RU-103	10255.	497.08	1.9587E-01
RURH-106	2890.	621.93	2.3035E+00
AG-108m	295.	722.94	4.5700E-02
CD-109	11817.	88.03	3.1148E+00
AG-110M	10008.	657.76	2.3563E-01
SN-113	14106.	391.69	2.6997E-01
TE-123m	13858.	159.00	1.0480E-01
SB-124	3074.	602.73	1.1733E-01
SB-125	16720.	427.89	6.8618E-01
TE-125m	12612.	109.27	3.1640E+01
I-129	10963.	39.60	0.0000E+00
I-131	13382.	364.48	1.9662E-01
XE-131m	14125.	163.93	4.6018E+00
BA-133	13351.	356.02	2.5215E-01
CS-134	3078.	604.70	1.1795E-01
CS-136	216.	818.51	3.9650E-02
CS-138	9.	1435.86	2.7940E-02
CE-139	14126.	165.85	1.1346E-01
BA-140	5814.	537.31	5.8688E-01
LA-140	5.	1596.21	1.0543E-02
CE-141	14105.	145.44	1.7951E-01
CE-144	13964.	133.51	7.7399E-01
CEPR-144	13964.	133.51	1.5466E+00
EU-152	13.	1408.01	7.3080E-02
EU-154	52.	1274.51	8.1990E-02
EU-155	11758.	86.54	3.5230E-01
HF-181	13568.	482.18	2.4859E-01
TA-182	11258.	67.75	5.1782E-01
HG-203	13643.	279.20	1.6176E-01
BI-207	3629.	569.70	1.2144E-01

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Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	13820.	277.36	2.0914E+00
PB-210	10702.	46.50	0.0000E+00
BI-212	288.	727.18	6.1916E-01
PB-212	16117.	238.63	2.9321E-01
BI-214	3092.	609.31	2.5922E-01
PB-214	13205.	351.92	7.7688E-01
RA-224	15896.	240.99	3.2333E+00
RA-226	18967.	186.10	3.2242E+00
AC-228	133.	911.21	1.2760E-01
TH-228	11588.	84.37	9.4995E+00
TH-229	11755.	88.47	4.5025E-01
U-232	10772.	57.78	2.4292E+02
PA-233	13285.	312.17	3.6602E-01
PA-234M	90.	1001.03	5.1440E-02
TH-234	10698.	63.29	6.1475E+00
U-235	18720.	185.71	1.9468E-01
NP-237	11748.	86.48	9.3275E-01
U-237	10801.	59.54	1.1365E+00
NP-238	103.	984.45	1.1548E-01
NP-239	12371.	106.12	3.9764E-01
PU-239	14162.	129.30	1.3554E+03
AM-241	10801.	59.54	1.0901E+00
AM-243	11327.	74.67	2.6238E-01